

CASE STUDIES

in Dental Hygiene

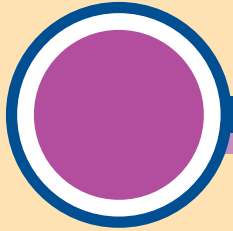
Third Edition



Evelyn M. Thomson

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CASE STUDIES IN

DENTAL HYGIENE

Third Edition

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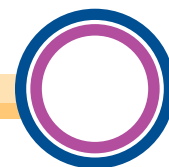
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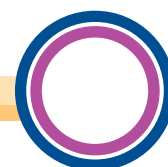
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Within the educational environment exists the goal to assist students in linking basic knowledge to dental hygiene care that is evidence based and patient centered. With the constantly evolving knowledge base and changing technologies, dental hygiene faculty are challenged to incorporate educational technologies that exceed knowledge acquisition and focus on critical decision making. This book is intended to provide dental hygiene educators with a ready-made bank of cases upon which to build meaningful learning activities for the students.

Health care educators are fully cognizant that effective clinical judgment comes from experience. It is the use of real-life situations that encourages student analysis and decision making in areas relevant to professional practice. During the course of their formal education, dental hygiene students may be exposed to only a small spectrum of cases they might encounter in the real world. The diversity of the cases in this text provides an avenue for simulating experiences students might not encounter in their education.

Case Studies in Dental Hygiene, Third Edition, is designed to guide the development of critical thinking skills and the application of theory to care at all levels of dental hygiene education—from beginning to advanced students. This textbook is designed to be used throughout the dental hygiene curriculum. Because the questions and decisions regarding treatment of each case span the dental hygiene sciences and clinical practice protocols, this book will find a place in enhancing every course required of dental hygiene students. Introducing this text at the beginning of the educational experience may help the students realize early on the link between theory and patient care. Students then progress through the program with a heightened awareness of evidence-based practice.

Students also perceive an increase in confidence regarding preparation for board examinations when they have been given the opportunity to practice case-based decision making. *Case Studies in Dental Hygiene*, Third Edition, is a viable study guide to help students prepare for success on national, regional, and state examinations with a patient care focus. This revised edition also is an excellent review text for the graduating dental hygiene student who is preparing to take the National Board Dental Hygiene Examination.

FEATURES

Case Studies in Dental Hygiene, Third Edition, presents oral health case situations representing a variety of patients who would typically be encountered in clinical settings. Of the 15 cases, 3 each represent the following patient types:

- Pediatric
- Adult-Periodontal
- Geriatric
- Special Needs
- Medically Compromised

Each case contains the following patient information:

- Medical history
- Vital signs
- Dental history
- Dental and periodontal charting
- Intraoral photographs
- Radiographs

To guide student learning and to meet the needs of instructors who desire to assign questions based on the topic being taught, questions are subdivided into the following categories:

- Assessing patient characteristics
- Obtaining and interpreting radiographs
- Planning and managing dental hygiene care
- Performing periodontal procedures
- Using preventive agents
- Providing supportive treatment services
- Demonstrating professional responsibility

Learning objectives help the students realize key concepts. Each learning objective is evaluated through the use of multiple-choice questions expertly written in the format used for the National Board Dental Hygiene Examination. Each question is identified as a basic knowledge level or as a competency level question, further guiding educators and students to use each case to maximum benefit at all levels of student learning. Correct answers and descriptive rationales for responses are provided for all questions, allowing the students and instructor to assess learning outcomes.

What sets *Case Studies in Dental Hygiene*, Third Edition, apart from a basic board examination review book is the inclusion of treatment planning exercises and learning activities that challenge the students to develop decision-making skills regarding patient care, and treatment recommendations that promote oral health and prevent oral diseases. Students usually respond favorably to the opportunity to apply knowledge gained in the classroom to fictional cases, and *Case Studies in Dental Hygiene*, Third Edition, provides a stress-free environment in which to learn how to make increasingly competent decisions.

SUGGESTIONS FOR EDUCATORS

In case-based teaching, a frequent faculty concern is that students have difficulty integrating information from various courses within the discipline to make competent, evidence-based decisions regarding dental hygiene care planning. Although there are a variety of ways to use *Case Studies in Dental Hygiene*, Third Edition, in the dental hygiene curriculum, educators may benefit from the suggestions discussed here.

Because each case is contained in a stand-alone chapter, the cases can be introduced in any order and at any time during the curriculum. Students who have the opportunity to simulate clinical treatment planning and decision making report increased confidence when faced with treatment planning and implementation decisions regarding patients in the clinical setting. For this reason, it is suggested that students be introduced to case scenarios early in the curriculum. For example, one of the adult-periodontal patient cases could be used as required reading for the preclinical student to introduce the dental hygiene process of care. The pediatric patient cases can provide an opportunity for the beginning student to identify eruption patterns. As the students progress through the curriculum, other cases that correspond with coursework may be introduced. For example, the pharmacology instructor may use the medically compromised patient cases to provide a realistic setting to assist students in linking drug interactions with dental hygiene care planning and managing patient treatment.

Another feature of *Case Studies in Dental Hygiene*, Third Edition, that makes it ideally suited for use throughout the curriculum is the division of basic and competency levels of questions in each of the 15 cases. Because the questions for each case are subdivided and labeled, instructors can readily identify introductory knowledge questions that can be introduced at the beginning of the term. The beginning student may be directed to answer the basic level questions, leaving the competency level questions until later in the curriculum. For example, the radiology instructor may assign students to complete the basic level questions of all the cases under the subheading “Obtaining and Interpreting Radiographs” during the first half of the term; then direct the students to complete the competency level questions during the second half of the term. Applying theory and knowledge gained in

the classroom to solve problems encountered through case-based questioning allows the students to become actively involved in the learning process. *Case Studies in Dental Hygiene*, Third Edition, advances with students as they progress through the curriculum. As students progress through the curriculum, the same cases may be revisited by directing the students to answer the competency level questions.

Instructors may use this revised edition to compliment and enhance material learned in other textbooks. For example, students learning instrument design from a theory book may link application of this knowledge when challenged by case photographs and charts to choose an appropriate instrument for scaling a specific area; and radiographic problem-solving skills are enhanced by examination of the case radiographs, challenging the students to identify technique and processing errors and to recommend corrective actions.

Case Studies in Dental Hygiene, Third Edition, is invaluable in the classroom. Discussion of answers to complex questions, presentations of student-developed dental hygiene care plans, and use of the suggested learning activities can increase the incidence of critical thinking and reinforce and facilitate learning in a dynamic, stimulating manner, therefore motivating the students to more fully participate in the learning process.

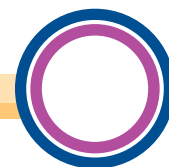
ABOUT THE THIRD EDITION

To provide a valuable resource for comprehensive cases that educators may use to guide students in developing critical decision-making skills continues to be the goal of *Case Studies in Dental Hygiene*, Third Edition. This book was designed specifically to encourage dental hygiene students to base patient care decisions on knowledge gained in theory, therefore fostering in students an appreciation of the link between theory and clinical practice. The following enhance this revised edition:

- Continuing the intent of previous editions, this collection of cases depicts a cross section of today's population, representing diverse age groups, ethnicities, and cultures.
- An introduction chapter has been added on how to use the book for maximum results. This chapter introduces the students to the dental hygiene process of care and the fundamentals of setting patient goals. The steps for designing treatment plans are outlined in easy-to-understand terms. This overview provides the beginning student with the instruction necessary to immediately begin applying knowledge learned in the classroom to clinical situations.
- A tutorial chapter with a new sample case has been added. Specific directions and learning tips guide the reader through the tutorial.
- Throughout the book new questions have been added that are based on the three new format types for questions introduced by the National Board Dental Hygiene Examination since the publication of the second edition.
- All case study questions have been updated based on evidence-based practices.
- Exercises for making evidence-based decisions and using guidelines for risk management for oral disease such as caries and periodontal diseases have been added to the treatment planning activities to assist students with developing the expertise required for dental hygiene practice.
- An ethical dilemma or ethical issue has been added to each of the cases to prompt critical thinking and challenge decision making.
- A companion Web site, *myhealthprofessionskit* with additional resources for students and faculty has been added. Features of this site that can be used to augment teaching and enhance learning include:
 - Electronic versions of the case questions from the book that can be assigned and graded online. This feature provides the instructor with the ability to monitor student progress with developing an understanding of the material.
 - An image library for instructors. Images used in the cases can be downloaded in jpeg format and copied for use in Power Point presentations, creating testing materials, and other media for classroom or student-group use.

- Images from the cases that the student can view in greater detail. As students work with the cases, image manipulation features on the computer such as a zoom tool and brightness and contrast scales can be used to enlarge and enhance the intraoral photographs and the radiographs. The ability to enlarge and zoom in on details, and to lighten and darken the images allows students to simulate the experience of reading digital radiographs.
- Clinical examination charts and risk assessment forms from the book that can be printed and used by instructors and students. These blank forms provide instructors with the flexibility of assigning additional activities. For example, printing out a blank clinical examination chart, the student can be directed to chart dental materials observed in the intraoral photographs or to record radiographic findings or to draw gingival recession or clinical attachment level. Additionally, since each case patient presents with a need for one or more oral health risks, students have access to additional risk assessment forms.
- Sample instructions for students on how to prepare a patient case paper for classroom presentation. Since many dental hygiene programs use a patient case development project to meet curriculum goals and to assess student competencies, instructors will value these detailed guidelines that include instructions in intraoral photography.
- Up-to-date links to Web addresses for data bases and search engines for assistance in determining evidence-based practices.

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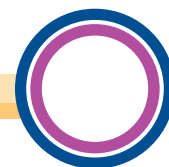


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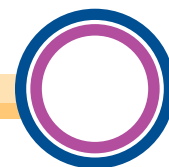
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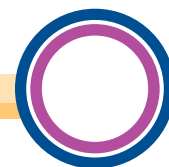
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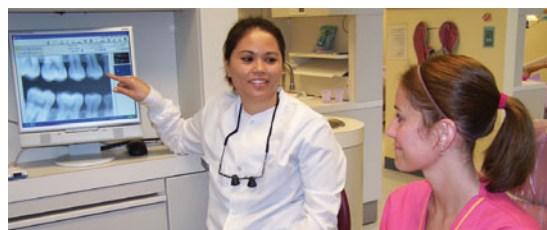
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CHAPTER 1

INTRODUCTION

HOW TO USE THIS BOOK



Case Studies in Dental Hygiene, Third Edition, is your guide to developing the critical thinking skills required to assess, diagnose, plan, implement, and evaluate dental hygiene care for patients.

The activities in this book are dynamic and will engage you to apply what you are learning in the classroom to patient care through simulation. These cases encourage you to get to know your patient, and provide you with opportunities to see how knowledge-based facts and theories learned in the classroom translate to skilled applications needed to manage patient care in a clinical setting. Exercises presented in this book will challenge you to develop the skills needed to become a competent practitioner.

As a dental hygiene professional you will be expected to:¹

- Distinguish the signs and symptoms of disease from conditions considered within normal limits
- Recognize risk factors and behaviors that exacerbate disease
- Understand the disease process
- Apply appropriate modes of treatment or management to assist the patient in arresting disease progression and in achieving and maintaining optimal oral health

The primary role of the dental hygienist is disease prevention and promotion of health. Emerging evidence of links between oral health and medical health will require that treatment decisions made by the dental hygienist integrate oral wellness with medical care. You will discover that the patients presented in the cases of this book will challenge you to link your developing knowledge base in basic sciences and dental hygiene core courses with patient care.

The 15 patients presented in this book await your consultation regarding dental hygiene diagnoses and interventions through appropriate implementation of the dental hygiene process of care.

¹American Dental Hygienists' Association: Dental hygiene diagnosis: An American Dental Hygienists' Association position paper, 2010. http://www.adha.org/governmental_affairs/downloads/DHDx_position_paper.pdf. Accessed August 10, 2011.

HOW THIS BOOK IS ORGANIZED

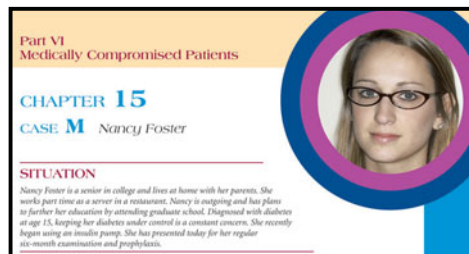
The case patients presented in this book are organized into the following case types:

- Pediatric cases consisting of children and adolescents with challenging states of mixed dentition
- Adult patients who present with complex periodontal conditions
- Geriatric patients or older adults who exhibit oral and medical conditions associated with aging
- Special needs patients with conditions that will influence the dental hygiene care plan including those presenting with dental implants, patients with active substance abuse or addiction problems, and adults with intellectual disabilities
- Patients whose medical diagnoses and drug regimens categorize them as medically compromised

The patients and their category of case types may be studied in any order, just as you may encounter each type of patient in a typical day of clinical practice.

THE CASES AT A GLANCE

Each case is a presentation of information about a patient in a format similar to that which you will encounter on the National Board Dental Hygiene Examination (NBDHE), making *Case Studies in Dental Hygiene*, Third Edition, not only a desirable avenue through which to gain the ability to make decisions regarding disease prevention and dental hygiene treatment interventions, but also a study guide to prepare for success on board examinations.



Each case begins with the patient's name, photographic facial image, and short paragraph describing the situation. The patient's name and facial profile provide a "snapshot" of patient characteristics. The information describing the situation sets the scene and provides you with an informal assessment of the patient's characteristics, mannerisms, mood, and other incidental, yet important observations that would be gathered in real life when you would greet and meet the patient during patient reception and preparations for treatment. This information, when combined with the formal assessment data obtained in the patient history synopsis, can be used to reach conclusions about the patient's oral health and disease prevention needs.

The patient history synopsis contains vital signs, smoking status; a list of current medications; medical, dental, and social histories; chief complaint; current oral hygiene status; supplemental oral examination findings; and a dental chart depicting clinically observable missing teeth, caries, and furcations, and a recording of periodontal probing depths.

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This history synopsis:

- Provides information regarding the patient's general health that may affect oral health, or impact treatment interventions.
- Identifies the nature or etiology of oral conditions.
- Exposes conditions that may contraindicate or necessitate altering dental hygiene treatment.
- Reveals conditions or a pattern of symptoms that may benefit from a medical referral or consultation.
- Provides insight into what the patient deems important or what motivates the patient to accept treatment recommendations.

Following the patient history synopsis you will find dental radiographs and photographic images of the patient's oral cavity. The radiographs reveal important diagnostic information. In several of the cases arrows have been added to direct your attention to a specific condition or question. But not all of the conditions of diagnostic importance have been pointed out for you. In most cases you will be challenged to do your own preliminary interpretation of the radiographic findings. These include not only deviations from the appearance of normal anatomic landmarks, but the identification of radiographic technique errors that compromise the diagnostic quality of the images as well. While pointing to a radiographic object of interest does provide you with the challenge of identifying the condition, allowing practice at discovering the deviation from normal on your own will assist you in developing interpretive skills necessary for practice.



The photographic images of the patient's oral cavity provide you with an anterior view, maxillary and mandibular views, and left and right lateral views. In some of the cases additional views are included—for example, an image of the tongue or tonsillar region, or images of study casts, or an instrumentation technique.

Viewing the images representing the clinical condition of the patient's oral tissues in combination with the radiographs and the dental and periodontal charting data is meant to simulate a real-life clinical experience.

LEARNING GOALS	
Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to:	
1. Assess patient characteristics.	4. Perform periodontal procedures.
A. Identify the classifications of diabetes using current medical terminology.	A. Classify the patient's periodontal condition using the American Academy of Periodontology classification system.
B. Determine the etiology of diabetes based on patient health history information.	B. Identify the causes of change in gingival tissues.
C. Classify fluorosis.	C. Assess outcomes of nonsurgical periodontal therapy.
D. Recognize diabetes effects on the oral cavity.	D. Describe the wound healing process.
E. Relate pathophysiology of diabetes with clinical symptoms.	E. Appropriately recommend recall appointment time intervals.
2. Obtain and interpret radiographs.	5. Use preventive agents.
A. Identify common radiographic artifacts.	A. Select appropriate tooth for pit and fissure sealant application.
B. Identify the cause of errors that diminish the quality of radiographs.	B. Select preventive agents based on patient needs.
C. Apply the appropriate corrective action to radiographic error.	6. Provide supportive treatment services.
D. Identify normal radiographic landmarks.	A. Recognize conditions that decrease the effectiveness of tooth whitening.
E. Use radiographs to classify carious lesions according to G. V. Black's method of classification.	7. Demonstrate professional responsibility.
F. Interpret deviations from normal radiographic anatomy.	A. Use health history follow-up questions to open communication with the patient for the purpose of avoiding the occurrence of a medical emergency during treatment.
3. Plan and manage dental hygiene care.	
A. Recognize and manage a medical emergency during dental hygiene treatment.	

In addition to presenting each case patient's name, facial image, situation, history synopsis, radiographs, and oral cavity images, learning goals are identified. The learning goals are clues to what you should know about the case. For example, if a learning goal states that you should be able to recognize root caries risk factors, you should look for this patient to present with root caries and the case to present challenging questions or treatment planning exercises for you to be able to identify its causes and recommend or implement appropriate care. Reading through the learning goals will set parameters for your practice by alerting you to topics with which you will need to be familiar.

CASE STUDY QUESTIONS	
ASSESSING PATIENT CHARACTERISTICS	
Basic Level Questions	
1. Based on the current American Diabetes Association classification system, this patient has which of the following?	
A. Type 1 diabetes	
B. Type 2 diabetes	
C. Gestational diabetes	
D. Drug-induced diabetes	
2. Which of the following was the most likely etiology in the development of this patient's diabetes?	
A. Insulin resistance	
B. Inadequate insulin secretion	
C. Autoimmune destruction of beta cells	
D. Poor weight management	
E. Sucrose consumption	

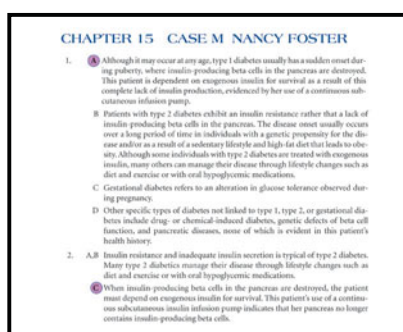
Each learning goal is directly related to a case study question. Each case presents 25 study questions that test the outcomes of the learning goals. Each multiple-choice question is written in the style used by the NBDHE and challenges you to assimilate all of the data presented by the case and to think critically. The study questions are presented in the same order as each of the corresponding learning goals to assist you with assessing your understanding of the material. The learning goal states the desired outcome of learning. Correctly answering the corresponding case study question confirms for you this desired outcome. To assist with organizing your thought process, the study questions are listed under the following seven knowledge and skill headings:

- Assessing patient characteristics
- Obtaining and interpreting radiographs
- Planning and managing dental hygiene care
- Performing periodontal procedures
- Using preventive agents
- Providing supportive treatment services
- Demonstrating professional responsibility

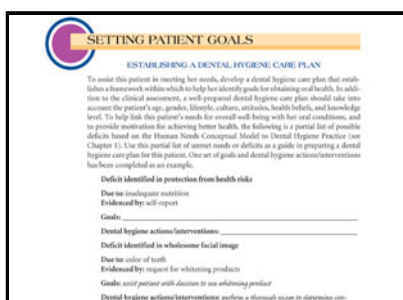
These seven knowledge and skill headings, based on the dental hygiene process of care, are used to set the parameters for questions developed for use on the NBDHE. By grouping the

study questions under these knowledge and skill headings, the format used in this book, you can better organize your thought process and direct your efforts toward assimilation with and command of the material. In addition to the NBDHE knowledge and skill heading categories, each question is further grouped as a basic level question or a competency level question. Organizing the questions in this manner allows this book to progress with you throughout your academic career.

As a beginning student, the cases provide you with an opportunity to apply theories learned in the classroom to simulated patient experiences. Using the cases as independent study or facilitated by your instructor in the classroom provides you with an opportunity to link the dental hygiene process of care theories to clinical practice, developing the critical thinking skills needed for sound decision making prior to applying these skills in the real-life clinical setting. Once a knowledge and awareness level of learning is achieved, you can be challenged to proceed to the application and problem-solving level of learning through continued practice with the competency level questions. And as you prepare for the capstone of your academic career, the NBDHE, this book can serve as a simulated examination for your preparation review.



The answers to each of the study questions are provided for your review, but the value of knowing the correct answer is enhanced only when you understand why the distracters are incorrect. Rationales are provided to help you increase your critical decision making skills by pointing out how one answer is better than the others. Chapter 18, in the answer discussion and rationales section of the book, can also be used as a study guide to terminology and to help clarify similar concepts and similar-appearing conditions.



FUNDAMENTALS OF SETTING PATIENT GOALS

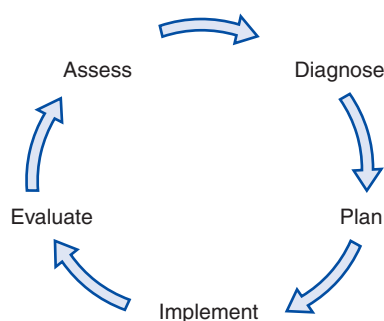
Each case provides you with an opportunity to demonstrate your grasp of the critical thinking framework called the dental hygiene process of care.² The dental hygiene process of care is a model used by dental hygienists to assist patients with meeting their health goals. The dental hygiene process of care requires a collection of patient data, such as that presented

²American Dental Hygienists' Association: *Standards for Clinical Dental Hygiene Practice*. Chicago, IL: American Dental Hygienists' Association, 2008.

in each of the cases in this book, called an assessment. Based on these assessment data, the dental hygienist will:

- Formulate a dental hygiene diagnosis
- Plan appropriate interventions
- Implement treatment
- Evaluate outcomes

Outcomes will then be assessed and the diagnosis, planning, and implementation steps will be repeated.



The individual components of the dental hygiene process of care model are interrelated.

The American Dental Hygienists' Association defines dental hygiene diagnosis as "the identification of an existing or potential oral health problem that a dental hygienist is educationally qualified and licensed to treat."³

Each case provides you with guidance on using the assessment data to develop a dental hygiene diagnosis for the patient. Practice at formulating a dental hygiene diagnosis for each case will assist you with developing critical decision making skills required to establish a care plan that is based on the patient's dental hygiene treatment needs. Each case will challenge you to identify the causes of, or risk factors for, the patient's disease or condition, and then challenge you to plan interventions that will assist the patient in reducing, eliminating, or preventing the disease or condition. After establishing a dental hygiene diagnosis, you will be challenged to assist the patient in meeting his or her needs by developing a dental hygiene care plan.

The dental hygiene care plan that you outline will establish a framework that will help you and your patient, and/or the caregiver, identify goals for obtaining oral health.

In addition to the clinical assessment, a well-prepared dental hygiene care plan will take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. Dental hygiene care must meet the needs of the whole patient. A relevant care plan will help link the patient's needs for overall well-being with their oral conditions, and will provide your patient with motivation for achieving better health.

³American Dental Hygienists' Association: Dental hygiene diagnosis: An American Dental Hygienists' Association position paper, 2010. http://www.adha.org/governmental_affairs/downloads/DHDx_position_paper.pdf. Accessed August 10, 2011.

Oral health needs cannot be separated from the total health of the patient.

A perceived need, such as relief from the pain of a toothache or a desire for whiter teeth, often motivates a patient to action that improves health. The Human Needs Conceptual Model to Dental Hygiene Practice⁴ is one way to assist you with identifying these patient needs. Identification of unmet needs, called *deficits*, will guide you in generating a treatment plan that gives the patient an active role in assisting with improving and maintaining health. The cause of the deficit can be identified by the presence, or evidence, of a condition or sign or symptom. For example, a patient with gingival attachment loss of 4 to 6 millimeters (mm) (evidence) would have a deficit in skin and mucous membrane integrity of the head and neck (one of the eight human needs identified next) caused by (due to) the presence of bacterial plaque accumulation. The Human Needs Conceptual Model is presented here as the basis of organizing the comprehensive data gathered in the assessment phase of dental hygiene care planning. The purpose of organizing data in this manner is to provide a systematic method for developing a dental hygiene care plan that integrates the patient's needs and assists with strategies that lead the patient to meeting these needs. These eight human needs related to dental hygiene care can be used to develop your care plan:

1. **Protection from health risks**—Dental hygiene treatment must not complicate or compromise the patient's medical conditions. For example, the dental hygiene care plan may need to include prophylactic antibiotic premedication for the patient with a recent hip replacement.
2. **Freedom from fear and stress**—The patient has a need to feel that dental hygiene treatment will be safe, rendered with respect, and provided in an anxiety-free setting. For example, the patient who refuses x-rays out of fear of radiation exposure may need the dental hygiene treatment plan to include an explanation of radiographic assessment of need recommendations.
3. **Freedom from pain**—The oral cavity and related supporting structures should not be a cause of physical discomfort. For example, if discomfort is anticipated from scaling and debridement interventions, the treatment plan should include the administration of anesthesia.
4. **Wholesome facial image**—The level of satisfaction and acceptance the patient has with the appearance of his or her smile, including such conditions as the straightness and whiteness of the teeth, and fresh breath may reveal unmet needs in this area. The dental hygiene treatment plan will most likely include the need to provide information regarding treatments and products, and referrals where appropriate.
5. **Skin and mucous membrane integrity of the head and neck**—Conditions such as gingival inflammation, periodontal pockets, and xerostoma indicate loss of skin and mucous membrane integrity. In response to this unmet need the dental hygiene care plan will most likely include interventions such as physical instrumentation, chemotherapeutic treatment, and strategies for motivating the patient to adapt behaviors that promote healing.
6. **Biologically sound and functional dentition**—Conditions such as caries, defective restorations, and missing teeth indicate a loss of biological and functional dentition. In response to this unmet need, the dental hygiene care plan will most likely include a radiographic assessment, a caries risk assessment, and referral to the dentist.
7. **Conceptualization and problem solving**—The patient should understand the need for preventive self-care and be capable of making decisions that promote oral health. The dental hygiene treatment plan should take this understanding into account when planning what methods of self-care to review with the patient and what teaching strategies will most likely succeed in bringing about the desired results.
8. **Responsibility for oral health**—The patient's actions such as keeping appointments or quitting smoking demonstrate his or her degree of accountability for oral health. The dental hygiene care plan should include realistic goals, possibly in incremental steps, that the patient can successfully manage.

⁴Darby ML, Walsh MM: *Dental Hygiene Theory and Practice*, 3rd ed. St. Louis: Elsevier, 2010, pp. 355–366.

ASSESSING RISK

Scientific evidence confirms that the best approach to wellness includes those strategies and treatments that focus on eliminating or reducing the risks for developing or advancing a particular disease or condition. This paradigm shift emphasizes prevention and moves away from an invasive or surgical approach to care; for example, assisting a patient with smoking cessation to eliminate this risk factor for periodontal disease and oral cancer. Prevention is the basis for CAMBRA, or CAries Management By Risk Assessment, a strategy backed by scientific research that uses a data gathering tool to predict a patient's level of risk for developing the disease. Identifying risk factors for oral diseases can help guide intervention strategies. Each case highlights one of these risks to oral wellness:

- Periodontal diseases
- Caries
- Oral cancer
- Dental implant complications and failure

The risk assessment forms included in Appendices A through D will guide you to identify:

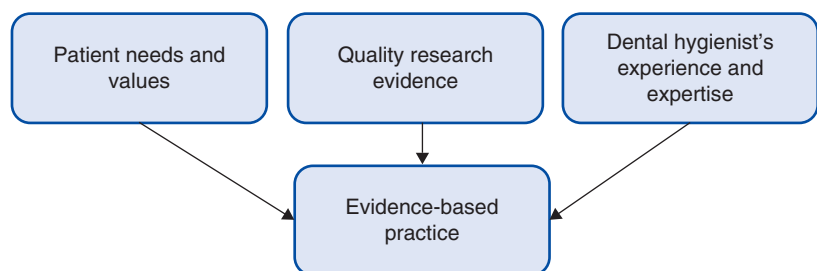
- Disease indicators
- Risk factors
- Protective factors

While only the Caries Risk Assessment Form (Appendix B) has undergone tests for validity and reliability, and is increasingly being adopted by practitioners for use with patients, each of the other forms, Periodontal Disease Risk Assessment Form (Appendix A), Oral Cancer Risk Assessment Form (Appendix C), and Implant Complication and Failure Risk Assessment Form (Appendix D) provide a basis for learning and can be applied to the cases presented in this book. Data gathered on the risk assessment forms can be used to determine the case patient's level of risk. Determining risk level will aid in designing an individualized care plan with strategies for managing the disease that include:⁵

- Patient behaviors
- Chemical, medicinal, and other product applications
- Minimally invasive therapies including physical instrumentation

SELECTING THE BEST OPTIONS

What are the best treatment interventions and self-care options to recommend for the patient? There is no one-size-fits-all when it comes to treatment planning and prescribing self-care aids. Recommendations must take into consideration the individual patient needs and depend on the experience and expertise of the dental hygienist and his or her ability to decipher the enormous amount of information regarding the efficacy and the efficiency of procedures and products.



⁵Jenson L, Budenz AW, Featherstone JDB, et al.: Clinical protocols for caries management by risk assessment. *Journal of the California Dental Association*, 35, 714, 2007.

To maintain this expertise, you will be expected to critically evaluate scientific literature for evidence of best practices that continue to emerge and affect the way you will provide dental hygiene care. Consulting and evaluating scientific research for validity and reliability, the dental hygienist can confidently make evidence-based decisions.

Evidence-based practice aims to deliver care that is based on scientific research.

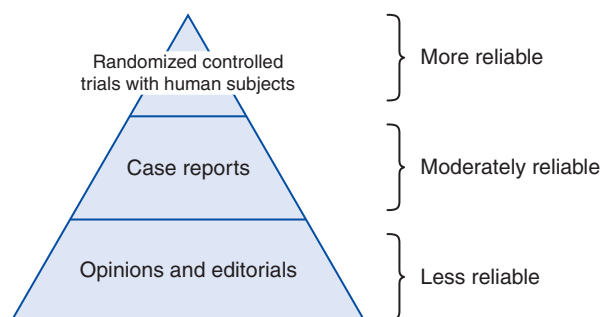
With each case, you will have opportunities to develop the skills needed to evaluate and assess scientific literature through the use of the PICO process.⁶ A patient who presents with a chief complaint or an unmet need has a problem (P) for which the dental hygienist will consider an intervention (I) of one type along with an alternative type of intervention as a comparison (C). Using scientific research to compare the outcomes (O) of the multiple interventions, the dental hygienist is more likely to recommend treatment that is both effective and efficient.

Sample PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For a patient with sensitive root surfaces (P), will Brand A toothpaste (I) as compared with Brand B toothpaste (C) provide better desensitization (O)?

Each case provides you with opportunities to formulate a PICO question that you can use as direction to evaluate current research. While specific products are named in the case PICO questions, you may develop additional PICO questions to compare other products that will meet the oral health needs of the patient. You will gain experience on your way to becoming a discerning reader of the wealth of information that both you as a professional and your patient as a consumer have access to. It is important to be able to determine the validity of the abundance of information that is available. The sources of this information can range from results of a well-controlled, randomized clinical trial performed on human beings and reported in a peer-reviewed medically based journal, to an opinion or editorial by a user who writes about her personal experience with a product on a Web site aimed at consumers. Learning to critically evaluate the abundance of information available is an important skill needed to provide patients with sound recommendations and appropriate and effective care.



Hierarchy of research quality⁷

⁶Sackett D, Straus S, Richardson W: *Evidence-Based Medicine: How to Practice & Teach EBM*. London: Churchill Livingstone, 2000, p. 1.

⁷Forrest JL, Miller S: Evidence-based decision making. *Dimensions of Dental Hygiene*, 3(9), 12, 2005.

PREPARING FOR CHALLENGES

As a dental hygiene professional you will be challenged to respond to ethical issues and dilemmas. An ethical issue is often easier to resolve because guidance can be found in a professional code of ethics or laws and regulations, or simply in sound standards of care. An ethical dilemma, which presents two conflicting principles in which any action taken will seem to violate one of the principles, can be particularly challenging.

An *ethical issue* is defined as a conflict with a law or standard of practice. An *ethical dilemma* is defined as a conflict between two morally correct choices.

Which is an *ethical issue* and which is the *ethical dilemma*?*

- A dental hygienist observes that his dentist employer fails to refer an adult patient whose periodontal health continues to decline at each maintenance appointment to a periodontist.
- An 18-year-old college student admits to smoking but doesn't want her parents to know. Her mother, who is financially responsible for treatment, asks you why her daughter's teeth are stained.

*Failure to refer a patient with declining health issues is in conflict with sound standards of practice and, in fact, could result in malpractice. The choices that are in moral conflict in the situation involving interaction with the 18-year-old patient and her mother include confidentiality to the patient and responsibility to explain treatment to the person financially responsible.

Making decisions regarding how to interact with patients, what to include in treatment planning, and the manner in which you provide care may sometimes result in two competing principles that can seem to be in conflict with one another. The tools you can learn to help you decide which action you take, what treatment you recommend, and how you respond are as follows:

- Identify the problem.
- Gather relevant information to see what alternative actions might be.
- List all possible courses of action and identify what the personal and professional implications of these actions might be.
- Evaluate possible courses of action by thinking through a worst case and best case scenario.

Each case presented in this book will provide you with an opportunity to work through hypothetical conflicts that will challenge your decision making skills.

CHAPTER 2

TUTORIAL

GETTING STARTED WITH A SAMPLE CASE

To get the most from your study time with this book, this chapter presents a guided demonstration of how to work with the cases. Use these suggestions as you work through the 15 cases designed to guide you to reach conclusions about the patients' needs related to oral health and disease, and to provide a basis upon which to make decisions regarding the identification, management, and evaluation of oral health activities and interventions. Consider this sample case.

Medically Compromised Patient

Margaret Snowden

SITUATION

Margaret Snowden is an avid outdoorswoman working as a park ranger at a nature conservancy where she is responsible, in partnership with the local school system, for leading educational experiences for children. Recently diagnosed with breast cancer, and having undergone a double mastectomy, she was directed to make this appointment today to be sure no underlying oral conditions will compromise her beginning chemotherapy and radiation therapy.



LEARNING TIPS

Examine the facial profile snapshot of the patient just as you would observe a real-life patient in the clinical setting. Determine if the appearance of the face, skin, and eyes indicate a need for further investigation.

- Is there an expression of anxiety or fear indicating apprehension regarding treatment?
- Are there lesions, blemishes, swellings, or growths that require further investigation?
- Does the patient wear eyeglasses or a hearing aid?

It is important to observe the patient for conditions that may have an indication for further examination and/or an influence on how treatment will proceed.

DID YOU NOTICE?

This patient is wearing corrective lenses. Why might this be important to note?

Eyeglasses may need to be in place during instructions for self-care.

LEARNING TIPS

Next review the situation. It is important to know why the patient has made this appointment. Listening to the patient's rational and chief motivator for being here may not only assist you with identifying a need, but also may reveal an unmet need for information regarding oral health.

DID YOU NOTICE?

What might a teaching opportunity be for this patient?

It is important for the patient to see the link between oral health and medical health. The patient may benefit from an understanding of how an oral infection can become a serious problem if chemotherapy and radiation therapy reduce the ability to fight inflammation.

LEARNING GOALS

Following integration of core scientific concepts and application of dental hygiene theory to the care of this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Determine the etiology of gingival color.
2. **Obtain and interpret radiographs.**
 - A. Identify dental materials.
3. **Plan and manage dental hygiene care.**
 - A. Plan dental hygiene interventions and oral self-care instructions based on the patient's oral assessment.
4. **Perform periodontal procedures.**
 - A. Demonstrate knowledge of the progression of periodontal diseases.
5. **Use preventive agents.**
 - A. Select the best fluoride therapy based on the patient's needs.
6. **Provide supportive treatment services.**
 - A. Identify a possible side effect of chemotherapy and radiation therapy and its appropriate treatment.
7. **Demonstrate professional responsibility.**
 - A. Educate the patient on the possible side effects of chemotherapy and radiation therapy on the oral cavity.

LEARNING TIPS

Do you often skip over reading the learning goals or objectives at the beginning of a text book chapter? Did you realize that learning goals outline exactly what you will need to know to be successful, whether that success is immediate such as a test your instructor is preparing or the long-term goal of becoming a competent dental hygienist? The learning goals outline what the study questions will cover. Reading the learning goals will heighten your awareness for what is important as you work through the case. The learning goals are listed in the same order as the appearance of the corresponding study question to assist you with working through the case.

DID YOU NOTICE?

- What questions do you anticipate being asked regarding this case?
- How can studying the learning goals help you prepare for an examination or clinical practical?

Rephrase each of the learning goals to form a question and you will discover what you will be expected to know. For example, the first learning goal "Determine the etiology of gingival color" becomes "What is the etiology of the color of the gingiva (in this region)?" The second learning goal "Identify dental materials" becomes "What is this dental material? (Refer to the radiographs)." Use this technique to help you study for an upcoming classroom test or clinical examination. After re-forming each goal into a question, determine the answer. If you can answer the question that you formed, you have achieved successful knowledge of what the case is teaching.

MEDICALLY COMPROMISED PATIENT—Margaret Snowden**PATIENT HISTORY SYNOPSIS**

Age 62 years
 Gender female
 Height 5' 6"
 Weight 135 lbs.

VITAL SIGNS

Blood Pressure 120/80 mm Hg
 Pulse Rate 80 bpm
 Respiration 20 rpm

- Under care of physician
 Yes ☒ No ☐ Condition: breast cancer
- Hospitalized within the last 5 years
 Yes ☒ No ☐ Reason: modified radical mastectomy both breasts
- Has or had the following conditions
none
- Current medications
acetaminophen (Tylenol®)—nonnarcotic analgesic
ondansetron (Zofran®)—antiemetic
(antinausea medication)
- Smokes or uses tobacco products
 Yes ☐ No ☒
- Is pregnant
 Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Based on the size (over 2 cm) and location (in more than one quadrant of tissue) a total mastectomy with axillary lymph node dissection was performed on both breasts 2 weeks ago. Drainage tubes were removed yesterday and the patient will begin physical therapy for range of movement of arms tomorrow. Scheduled to begin the first of 4 cycles of chemotherapy next week followed by radiation therapy. Her doctor has prescribed ondansetron (Zofran) prior to beginning chemotherapy.

DENTAL HISTORY

Extensive dental restorative treatment. Composite restorations placed 6 months ago. Drinks fluoridated water. Uses fluoridated toothpaste.

SOCIAL HISTORY

Single. Enjoys an active lifestyle. Patient has attended one meeting of a local cancer survivors support group.

CHIEF COMPLAINT

Root sensitivity maxillary left premolars. Staining on partial denture. Questions regarding the impact of dental treatment on cancer treatment, including the need for x-rays.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2																
1																
R																
Probe 1																
2																
R																
Probe 1																
2																
R																
Probe 1																
2																
R																

CURRENT ORAL HYGIENE STATUS

Generalized bleeding on probing. Slight generalized plaque biofilm. Slight supragingival calculus lingual surfaces of the mandibular anterior teeth.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Diminished salivary flow.

 Clinically visible carious lesion

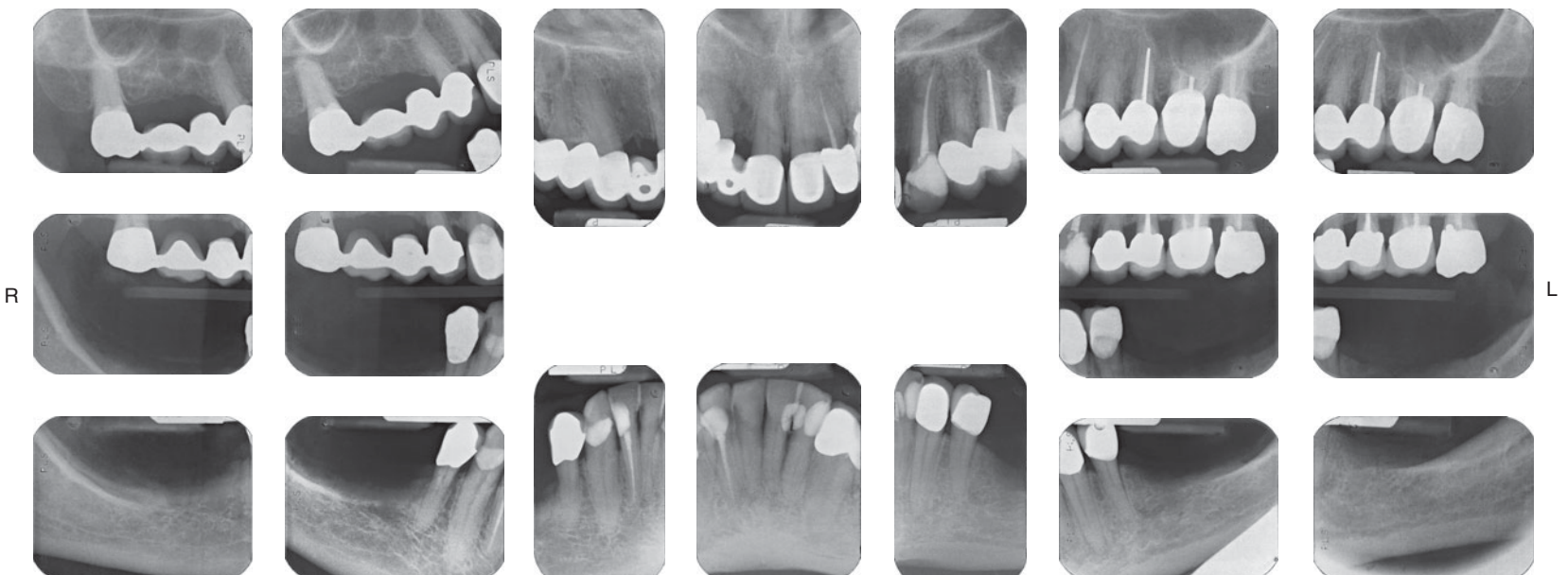
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 1 month after scaling and root planing





Right side



Left side

LEARNING TIPS

Study the patient history synopsis, dental chart, radiographs, and photographic images of the oral cavity. Do not skip directly over to the study questions. Instead, try to anticipate what the questions will be about. Visualize interviewing the patient. You may use the synopsis with a student partner to role-play the interview process. As you review each of the patient's responses, ask yourself if the patient's responses will have an impact on dental hygiene care. For example, do the vital signs fall within the normal limits for this patient? What medications do you expect to see related to the patient's medical condition? Are you familiar with the medications listed? Do you know if the drugs will impact how dental hygiene care is delivered? If not, where will you get this information? Directing your thinking process or role-play along these lines will simulate a real-life patient encounter. Try to put yourself face-to-face with the patient and anticipate what you would need to know to safely provide care to this patient. In this example, role-play asking the patient, "Are you under the care of a physician?" When the patient responds, "Yes, for breast cancer," ask yourself what you know about breast cancer. How will this condition impact dental hygiene treatment? Should oral health care be coordinated with medical care? What will the patient's oral self-care needs be?

Next, review the clinical examination chart findings and begin a visual inspection of the radiographs and the photographic images. Note that in addition to probing depths, only clinically observable caries, clinically missing teeth, and clinically observable furcation involvement are depicted on the chart. *Clinically observable* means that these three conditions can be noted by visual inspection of the oral cavity. A thorough examination of the radiographs and the photographic images is needed for a comprehensive assessment. For example, the clinical examination chart may indicate clinically missing third molars, meaning that these teeth cannot be observed by a visual inspection of the oral cavity. However, an examination of the radiographs may reveal that the third molars are present, but impacted (unerupted in the oral cavity). The purpose of the clinical examination chart is to supplement the radiographs and the photographic images, and to add information for your data collecting. It is important to understand that the clinical examination chart does not provide a comprehensive dental and periodontal assessment. That is your task, using an orderly and systematic sequence so that you do not miss or overlook a potentially important finding.

You began the assessment by examining the patient's appearance from the snapshot image previously discussed. Continue the assessment now by examining the color, pigmentation, and texture of the lips, oral mucosa, and tongue. Look for irritations; moistness of surfaces; dry, cracked conditions; traumatic lesions; and conditions such as herpes and angular cheilosis. After examining the soft tissues, progress to the teeth and supporting bone. Note missing and carious teeth, attrition, and dental restorations. Observe the contours of the bone. Are tori and exostoses present? What is the condition of the edentulous ridge? In conjunction with the probing depths recorded on the dental chart, examine the soft tissues of the periodontium. Compare the observations noted in the photographic images with the radiographs. To assist you with developing a systematic and orderly routine, use this suggested sequence to examine the:

- Lips
- Mucosa, vestibules
- Frenal attachments
- Tongue
- Sublingual region
- Salivary ducts

(continued)

- Hard palate
- Soft palate and tonsillar region
- Teeth
- Gingiva

Ask yourself questions about what you see. For example:

- What is the color and consistency of the gingiva?
- Can you make an assessment of the patient's home care?
- Do the radiographs reveal radiolucencies that need further investigation?

Performing your own assessment before proceeding to the study questions will challenge you to demonstrate your ability with this skill.

DID YOU NOTICE?

- This patient has presented for dental hygiene care in the middle of her treatment for breast cancer.
- Why do you think the oncologist directed the patient to make this dental hygiene appointment prior to beginning chemotherapy and radiation therapy treatments?

It is important that oral infections and the potential for oral infections be eliminated prior to beginning chemotherapy and radiation therapy. A suppressed immune system increases the patient's risk for developing oral conditions that threaten her general health and compromise quality of life.

DID YOU NOTICE?

What other findings did you note during your assessment that may require follow-up investigation? Consider the following as an example of a few of the conditions that you should have noticed:

- The removable partial denture clasps appear to be in a position that is likely to impinge on the soft tissue.
- The tip of the tongue appears smooth and shiny with atrophied papillae.
- The mandibular anterior teeth exhibit attrition.
- The inflammation of the gingiva is significantly worse in the region of the mandibular left anterior.
- The edentulous posterior ridges appear significantly atrophied.
- There is moderate recession.
- Possible frenal attachment involvement appears in the mandibular anterior region.
- Several teeth have undergone endodontic therapy.
- The radiographs reveal the presence of composite restorations not readily identified in the photographic images.
- Two of the radiographic images exhibit cone cut error.

As you proceed with the assessment you can add to this list of conditions.



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Question

1. What is the most likely cause of the dark spot on the facial mucosa near the mandibular left canine?
 - A. Denture-induced oral lesion
 - B. Dilated blood vessel
 - C. Hyperkeratosis
 - D. Normal pigmentation
 - E. Amalgam tattoo

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Question

2. A retention pin was used in the restoration of the
 - A. Maxillary left lateral
 - B. Maxillary left second premolar
 - C. Maxillary left first molar
 - D. Mandibular left lateral incisor
 - E. Mandibular right lateral incisor

PLANNING AND MANAGING DENTAL HYGIENE CARE

Competency Level Question

3. For each condition exhibited by this patient listed, select the best option for planning and managing oral disease. (Answers may be used only once.)

Condition exhibited in this region	Options for planning and managing oral disease
___ 1. Maxillary right	A. Scaling and root detoxification
___ 2. Maxillary left	B. Referral for caries
___ 3. Mandibular left incisors and canine	C. Self-care use of floss threaders
___ 4. Mandibular right incisors	D. Self-care digital massage with finger and thumb
___ 5. Mandibular right and left posterior	E. Self-care burnishing with wooden toothpick

PERFORMING PERIODONTAL PROCEDURES

Basic Level Question

4. Order the stages leading to the periodontal condition noted in the region of the mandibular left central and lateral incisors and canine. Match each letter with its proper sequence number.

Begin at first-stage gingivitis to formation of periodontal pockets.	
1. ___	A. Increase in number and predominance of β -cells and plasma cells
2. ___	B. Accumulation of bacterial plaque biofilm
3. ___	C. Apical migration of the epithelial attachment to the cementum
4. ___	D. Clinical signs of erythema, edema, bleeding upon stimulation
5. ___	E. Increase in leukocytes (neutrophils and macrophages)

USING PREVENTIVE AGENTS

Competency Level Question

5. Self-care for this patient should include brushing with a 1.1% neutral sodium fluoride toothpaste *because* xerostomia increases the risk for caries.
 - A. Both the statement and reason are correct and related.
 - B. Both the statement and reason are correct, but not related.
 - C. The statement is correct, but the reason is not.
 - D. The statement is not correct, but the reason is correct.
 - E. Neither the statement nor the reason is correct.

PROVIDING SUPPORTIVE TREATMENT SERVICES

Competency Level Question

6. This patient is at risk for developing *Candida albicans*.
Azole antifungals are used to treat candidiasis.
 - A. Both statements are true.
 - B. Both statements are false.
 - C. The first statement is true, the second statement is false.
 - D. The first statement is false, the second statement is true.

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

7. From the following list select the six possible risks to oral health and side effects related to chemotherapy and radiation therapy that should be explained to this patient.
 - A. Temporomandibular disorder (TMD)
 - B. Mucositis
 - C. Xerostomia
 - D. Trimus
 - E. Increased risk for caries
 - F. Candidiasis
 - G. Increased risk for viral or bacterial infections
 - H. Increased gingival bleeding in response to plaque
 - I. Bruxism

LEARNING TIPS

Each case study question is written in the style and format that will most likely be encountered on board examinations. Practicing working through the questions will help familiarize you with what to expect on board examinations. The study questions used for each case include multiple-choice questions and sentence completion questions. For example, question 1, “What is the most likely cause of the dark spot on the facial mucosa near the mandibular left canine?”, is a straightforward question followed by a list of five different answers, only one of which is correct or best answer. Question 2, “A retention pin was used in the restoration of the . . . ,” is an example of an incomplete statement followed by five different answers, one of which correctly or best completes the statement. Working through the case study questions you will also encounter paired true–false and cause-and-effect statements. For example, question 6, “This patient is at risk for developing *Candida albicans*. Azole antifungals are used to treat candidiasis,” pairs two statements on the same topic to challenge you to determine if one or both of the sentences is true or false. Question 5, “Self-care for this patient should include brushing with a 1.1% neutral sodium fluoride toothpaste *because* xerostomia increases this risk of caries,” contains a single sentence that is composed of a statement separated from the reason by the

word *because*. This question format will challenge you to determine not only if the statement and the reason are correct, but also if they are related to each other.

There are three other question formats recently adopted by the NBDHE. They include matching questions; questions that require putting a list of terms or conditions into the correct order or sequence; and questions with more than one correct answer. Question 3 is an example of a matching question. Items listed in the left column are related in some way to the items listed in the right column. Your task is to link the items together based on their relationship. Question 4 demonstrates the ordering format. Note that the question directs you to place the listed items into the correct order from the initial onset of gingivitis through the progression of periodontal disease. The stem of this type of question will alert you to the direction of the order considered correct. Question 7 is an example of a multiple-choice question with multiple correct answers. Successfully answering questions of these three formats requires complete accuracy. Success is determined by accurately matching all of the items listed in the left column with the corresponding items listed in the right column (matching questions); correctly ordering each of the components in the ordering questions; and by selecting all of the correct answers in the multiple correct answer questions. There is no credit for getting part of these questions right.

To assist in organizing learning, the questions are grouped together under the seven knowledge and skill category headings used on the NBDHE:

- Assessing patient characteristics
- Obtaining and interpreting radiographs
- Planning and managing dental hygiene care
- Performing periodontal procedures
- Using preventive agents
- Providing supportive treatment services
- Demonstrating professional responsibility

Grouping questions together in this manner will help direct your learning and assist you with identifying topics that require further study or consultation in other text books to be able to work through the cases.

In addition to these category groupings, each question is labeled as a basic or competency level study question. For example, study questions 1, 2, 4, and 7 are based on knowledge level objectives. To successfully answer these questions you must be able to recognize and define terms, conditions, steps, and similar knowledge-based information. Successfully answering the competency level study questions 3, 5, and 6 requires higher-level application, or problem-solving, skills. Labeled at either the basic or the competency level, the questions can be used to progress with you through your academic career. As you begin your study of dental hygiene, you can work with the basic questions, which will help you gain experience with linking theories and classroom information to the skills you will be developing for comprehensive patient care in a complex setting. As your knowledge base builds you can return to these “patients” and tackle the more complex competency level questions, challenging you to apply the knowledge gained in the classroom to the clinical situation simulated by the case.

DID YOU NOTICE?

You must refer to all of the resources offered in the case to answer the questions.

Successfully answering the study questions requires not only a knowledge base in the topic categories, but also that you consult the patient synopsis, chart findings, photographic images, and radiographs.



CASE STUDY QUESTION ANSWERS

MEDICALLY COMPROMISED PATIENT MARGARET SNOWDEN

1.
 - A The appearance of tissue under a removable denture can vary from highly keratinized to no keratinization, depending on several variables including the fit of the denture and the efficacy of oral hygiene self-care. A denture that does not fit correctly is likely to cause an irritated red, inflamed, or ulcerated lesion and not the bluish, tattoo-like appearance noted here.
 - B A dilated blood vessel, often observed in older adult patients, manifests as a deep red or bluish varicosity in the sublingual region or on the tongue. This condition should not be confused with the flat, bluish staining of the mucosa noted here.
 - C If the removable partial denture had a rough edge or otherwise was causing irritation, hyperkeratosis may result. Hyperkeratosis, a thickening of the tissues in response to the irritation, appears as patchy, white keratinized tissue.
 - D Normal melanin pigmentation changes the appearance of the gingiva to brownish or black. Pigmentation can vary among populations and may depend on race and genetics. Increased pigmentation in the labial mucosa has been linked with smoking. Changes in the pigmentation of the gingiva should not be confused with the bluish-gray hue noted here.
 - E** An amalgam tattoo results when a particle of amalgam used to restore teeth accidentally becomes embedded under the soft tissues. The presence of amalgam under the translucent tissue manifests as a bluish-gray hue. Amalgam tattoos are often found in patients who have had extensive or large amalgam restorations. Although this patient has a significant number of crowns, it is very likely that these teeth exhibited numerous and large amalgam restorations prior to the need for crowns.
2. A,B,E An examination of the radiographs reveals that the maxillary left lateral, maxillary left second premolar, and mandibular right lateral incisor exhibit the radiopaque appearance of endodontic filling material. The radiopacity of this material extends throughout the pulp chamber and root canals. This appearance should not be confused with the appearance of a retention pin.
 - C** A retention pin can be observed upon close examination of the radiograph of the maxillary left first molar. In addition to the radiopaque endodontic filling material, a short, significantly wider metal object can be observed. The size and shape of retention pins help distinguish this dental restorative material from other types of restorations.
 - D The mandibular right lateral incisor exhibits less radiopaque-appearing composite restorations on the mesial and distal surfaces of the crown of the tooth.
3.
 1. **C** The presence of the fixed bridge with pontics replacing the maxillary right second premolar and first molar makes the use of floss threaders the ideal choice from this list for oral self-care in this region.
 2. **E** The appearance of recession and root exposure of the maxillary left first and second premolars in combination with the patient's chief complaint regarding root sensitivity in this region make burnishing with a wooden toothpick a good choice from this list for oral self-care. Gently burnishing or rubbing the exposed region of the teeth roots can help stimulate the formation of secondary dentin to diminish sensitivity.

3. **A** The inflamed and enlarged appearance of the gingiva in the region of the mandibular left central and lateral incisors and canine, in combination with the periodontal probe readings recorded on the chart, and the radiographic appearance of reduced bone levels that indicate periodontal involvement make scaling and root detoxification the best choice from this list.
 4. **B** The radiolucencies observed on the radiographs on the distal of the mandibular right central incisor and on the mesial of the mandibular right lateral incisor indicate a deviation in the normal radiopaque appearance of intact enamel. These radiographic findings indicate a need for a referral for evaluation of caries.
 5. **D** The mandibular right and left posterior teeth have been replaced with a removable partial denture. It is important that the denture be removed and cleaned after each meal. Additionally, the underlying tissue should be cleaned and massaged to maintain good oral health.
4. **B** The establishment of bacterial plaque biofilm is necessary for the proliferation of other pathogens.
 2. **E** Two to 4 days after the establishment of bacterial plaque biofilm, leukocytes (neutrophils and macrophages) increase to defend against inflammation. There are no observable clinical changes in the tissue at this point.
 3. **D** Beginning after 4 to 7 days, there are clinical signs of erythema, edema, and bleeding upon stimulation indicating gingivitis.
 4. **A** Gingivitis that persists or is chronic is characterized by the increase in number and predominance of β -cells and plasma cells.
 5. **C** Gingivitis becomes periodontitis as the connective tissue fibers detach from the cementum and migrate apically contributing to resorption of the supporting bone.
5. **A** Brushing with a toothpaste with 1.1% neutral sodium fluoride provides beneficial caries prevention. A neutral sodium fluoride will not harm the dental restorative materials present, making the statement correct. Xerostomia, a reduced salivary flow, increases the patient's risk for caries, making the reason correct. The statement and the reason are related because appropriate management of xerostomia includes the use of fluoride therapies.

B,C,D,E These are incorrect answers, as explained previously.

6. **A** Both statements are true. Some chemotherapeutic agents used in the treatment of cancer suppress the immune system, increasing the patient's risk of developing oral infections such as *Candida albicans* or candidiasis. Especially at risk are patients who wear a removable partial denture. Chemotherapy and radiation therapy can cause changes in the oral cavity such as swelling and ulceration that may lead to denture irritation and an increased risk for fungal (and bacterial and viral) infections. Candidiasis can be treated with azole antifungals dispensed as a lozenge that is held in the mouth until dissolved.

B,C,D,E Both statements are true, as explained previously.

7. **A,D** Problems with the temporomandibular joint (TMJ) such as pain or a limited ability to open the arches (trismus) may result from radiation therapy directed on the muscles in this region, as would be the case in radiation treatment of oral cancer. The radiation therapy this patient will undergo will not be likely to affect the TMJ or result in trismus.
- B** Chemotherapy and radiation therapy for breast cancer will not always result in oral manifestations, especially if oral self-care is meticulous. Mucositis, inflammation, and ulceration of the mucosa are not direct side effects of these therapies, but due to the toxicity of chemotherapy and radiation therapies, the patient is at risk for these conditions.

- C,E** Xerostomia is a possible side effect of some chemotherapeutic agents used to treat cancer, and xerostomia in turn will increase the risk for the development of caries. Additionally, if fungal, bacterial, or viral infections develop, these can make the oral cavity sore and compromise effective plaque control, in turn increasing caries risk.
- F,G** Some chemotherapeutic agents used to treat cancer suppress the immune system, increasing the patient's risk of developing candidiasis, a fungal infection of the oral cavity. A suppressed immune system also increases the risk of developing viral and bacterial infections.
- H** Cellular changes that increase an inflammatory response and myelosuppression contribute to increased bleeding. Bacterial plaque exacerbates the bleeding response.
- I** Bruxism or clenching and grinding the teeth may be linked to how the patient responds to stress of the cancer and its treatments. However, this is not a direct side effect.

LEARNING TIPS

Use the answers and rationales to further your understanding of the topics addressed in the study questions. It may be tempting to only glance at this section of the book to score your answers as correct or incorrect, but this section provides more opportunities for further learning. While it is important to have selected the correct answers to the study questions, it is equally important to understand why the other choices, called *distracters*, were incorrect. The rationales provide an opportunity to not only learn the key points for the topics addressed by the study question, but to ensure your understanding of the incorrect answers as well.

DID YOU NOTICE?

You can use the Answer Discussion and Rationales section (Chapter 18) to advance your learning. Consider this activity. “Teach” the topics addressed by the study questions to a student partner, or, if practicing on your own, write out explanations of the topics that would assist a beginning student with learning the material.

For example, consider the first study question:

1. What is the most likely cause of the dark spot on the facial mucosa near the mandibular left canine?
 - A. Denture-induced oral lesion
 - B. Dilated blood vessel
 - C. Hyperkeratosis
 - D. Normal pigmentation
 - E. Amalgam tattoo

The correct answer is *E. Amalgam tattoo*. But suppose your student partner asks you why *B. Dilated blood vessel*, which can appear bluish in color, is not the correct answer. Based on what you learned in the rationale section, use your own words to explain the difference between these two conditions. Continue teaching or explaining the differences between the correct answers and the rationales for each of the study questions. This exercise can strengthen your knowledge base.

To prepare to teach or explain a concept to someone, you must first learn the concept yourself.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which she can identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. The first set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: risk for oral complications from cancer treatment

Evidenced by: impending chemotherapy and radiation therapy

Goals: *to assist patient with developing oral self-care strategies that help her avoid oral complications during chemotherapy and radiation therapy*

Dental hygiene actions/interventions: *consult with oncologist and nurse case manager regarding chemotherapy drugs, radiation doses, and drugs prescribed to manage pain, nausea, and other side effects of cancer treatment to determine risk of oral side effects and contraindications to dental hygiene treatment; assess patient knowledge regarding her current periodontal health and assist her with setting goals to improve; determine patient's skill level and motivation to improve oral hygiene self-care; together with patient, plan what oral hygiene aids should be introduced at this first appointment and at subsequent appointments; provide oral self-care instruction*

Deficit identified in freedom from fear and stress

Due to: stress and anxiety related to cancer and its treatment

Evidenced by: patient reporting concern with dental treatment and x-rays

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from pain

Due to: dentinal hypersensitivity

Evidenced by: sensitivity of maxillary left premolars; recession and root exposure

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in wholesome facial image

Due to: patient report

Evidenced by: staining of removable partial denture

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: bacterial plaque and inadequate oral health behaviors

Evidenced by: presence of gingivitis and periodontal bone loss

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: future caries risk

Evidenced by: existing carious lesion; xerostomia

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: lack of knowledge regarding periodontal condition

Evidenced by: gingivitis and periodontal disease

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: inadequate oral self-care

Evidenced by: gingival bleeding and calculus

Goals: _____

Dental hygiene actions/interventions: _____

LEARNING TIPS

The cases facilitate practice at setting patient goals and establishing a dental hygiene care plan in a stress-free environment before you meet real-life patients in the clinical setting. Here you have the opportunity to evaluate a patient's needs and to practice linking these needs with dental hygiene interventions. Each of the cases offers some sample patient needs to get you started. Every need, or deficit, is not listed for you. Use the examples as guides to determine a comprehensive list of unmet patient needs and then tailor a care plan that is patient-centered and designed to lead to optimal wellness. Your instructor may assign student work groups or pairs to work on these exercises. Presenting your case plans to the rest of the class for feedback and discussion will provide additional opportunities at practicing this core skill.

DID YOU NOTICE?

The goals and dental hygiene actions presented in the sample focus on the patient. Why is this important?

When developing your care plans it is important to remember that the patient is ultimately responsible for his or her health. Oral wellness depends on effective daily oral self-care and for making and keeping appointments for treatment and follow-up

assessment and evaluation. The patient needs to perceive a need in order to respond effectively to it. For example, telling this patient to use a floss threader daily is not as likely to motivate her to use it as is showing her the need (bleeding gums) for effective removal of bacterial plaque biofilm. Additionally, treatment planning needs to be a collaborative effort. For example, after demonstrating the floss threader, the patient should have the opportunity to determine whether or not she will be likely to use it. Maybe it is too difficult to manage or she objects to the feel of it. The patient and the dental hygienist will need to work together to determine what oral self-care aid is most likely to be used effectively.



ASSESSING RISK

What is this patient's overall risk for:

- Periodontal disease
- Caries
- Oral cancer

Use the appropriate forms (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.

LEARNING TIPS

There are four risk assessment forms included in the appendices, one each for assessing a patient's risk for periodontal disease (Appendix A), caries (Appendix B), oral cancer (Appendix C), and implant complications and failure (Appendix D). You may determine that this patient will benefit from an assessment of her risk for periodontal disease, caries, and oral cancer (she does not have dental implants). Or your instructor may assign you to concentrate on completing only one assessment, deemed the most critical, for this patient. Use the completed risk assessment form to design an individualized treatment plan for this patient.

DID YOU NOTICE?

- Did you determine that this patient may benefit from risk assessment profiles in all three areas: periodontal disease, caries, and oral cancer?
- When performing a caries risk assessment, did you take into consideration the patient's upcoming medical treatments for cancer?

It can appear that it is sometimes easy to assume a patient's relative risk for a disease. For example, clinical evidence of caries is a high-risk disease indicator for future caries. However, the purpose of preventive practices is to determine risk before conditions present, and especially before conditions present that require more invasive therapies. Therefore, this patient may indeed benefit from risk assessments performed for each of these three conditions.

The following is a sample completed caries risk assessment form that takes into consideration the patient's upcoming medical treatments for cancer.

Caries Risk Assessment Form — Children Age 6 and Over/Adults

Patient Name: Margaret Snowden
 Chart #:
 Date:
 Assessment Date: Is this (please circle) base line or recall

Disease Indicators (Any one “YES” signifies likely “High Risk” and to do a bacteria test**)	YES = CIRCLE	YES = CIRCLE	YES = CIRCLE
Visible cavities or radiographic penetration of the dentin	<u>YES</u>		
Radiographic approximal enamel lesions (not in dentin)	YES		
White sports on smooth surfaces	<u>YES</u>		
Restorations last 3 years	<u>YES</u>		
Risk Factors (Biological predisposing factors)			
MS and LB both medium or high (by culture**)		YES	
Visible heavy plaque on teeth		<u>YES</u>	
Frequent snack (> 3× daily between meals)		YES	
Deep pits and fissures		YES	
Recreational drug use		YES	
Inadequate saliva flow by observation or measurement (**If measured, not the flow rate below)		<u>YES</u>	
Saliva reducing factors (medications/radiation/systemic)		<u>YES</u>	
Exposed roots		<u>YES</u>	
Orthodontic appliances		YES	
Protective Factors			
Lives/work/school fluoridated community			<u>YES</u>
Fluoride toothpaste at least once daily			YES
Fluoride toothpaste at least 2× daily			<u>YES</u>
Fluoride mouthrinse (0.05% NaF) daily			YES
5,000 ppm F fluoride toothpaste daily			YES
Fluoride varnish in last 6 months			YES
Office F topical in last 6 months			YES
Chlorhexidine prescribed/used one week each of last 6 months			YES
Xylitol gum/lozenges 4× daily last 6 months			YES
Calcium and phosphate paste during last 6 months			YES
Adequate saliva flow (> 1ml/min stimulated)			YES
**Bacteria/Saliva Test Results: MS:LB: Flow Rate: ml/min.Date:			

VISUALIZE CARIES BALANCE
 (Use cicled indicators/factors above)
 (EXTREME RISK = HIGH RISK + SEVERE SALIVARY GLAND HYPOFUNCTION)
 CARIES RISK ASSESSMENT (CIRCLE): EXTREME HIGH MODERATE LOW

Doctor signature/#:
 Date:

Redrawn with permission from Featherstone JDB, Domejean-Oriliaguet S, Jenson, L, Wolff M, Young DA: Caries risk assessment in practice for age 6 through adult. *California Dental Association Journal*, 35(10), 703–713, 2007.

DID YOU NOTICE?

Does your treatment plan for this patient include the following:

- Patient education and motivational strategies
- Antibacterials
- Calcium phosphate supplements
- Fluoride applications
- NaF varnish for root exposures
- Saliva testing
- Debridement
- Referral for treatment of existing caries
- Radiographic reevaluation intervals
- Intervals for recare appointments



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this patient's sensitive root surfaces (P), will a toothpaste containing 5% potassium nitrate (I) as compared with toothpaste containing amorphous calcium phosphate (C) provide better desensitization (O)?

LEARNING TIPS

It is important to critically evaluate the quality and validity of the article or research that you use to solve the PICO question. You should also be familiar with articles readily available and marketed to patients. Your institution's library can assist you with determining which database to use for your particular question. Examples of databases and search engines include:

- Dentistry and Oral Sciences Source (EBSCO Publishing)
- Health Source: Consumer Edition (EBSCO Publishing)
- MEDLINE/PubMed (U.S. National Library of Medicine)
- Science Direct (Elsevier)

Your institution may also have its own databases within its research, teaching, or medical facility.

DID YOU NOTICE?

Why is evidence-based decision making critical to the practice of dental hygiene?

Ongoing research combined with the discovery of new drugs and technological advances continue to impact dental hygiene practice. To stay apprised of current state-of-the-art practices and innovations, the dental hygienist must be able to effectively and efficiently find and review scientific research.



MAKING ETHICAL DECISIONS

Because she is about to undergo radiation therapy for cancer, this patient is apprehensive about having dental radiographs taken. After you discuss the need for a complete radiographic examination, the patient tells you that a nurse at her cancer treatment center warned her about getting additional radiation.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.

LEARNING TIPS

Each of the cases presents an opportunity to work through the ethical decision-making process. Following a description of the situation, questions will guide you through the ethical decision-making framework. While there are laws and professional codes of ethics that assist with resolving many ethical issues, there are other situations where there does not seem to be a clear choice of action. Use the discussion questions to write out your options.

DID YOU NOTICE?

Try working out your own answers to this sample case first and then consider the following sample answers:

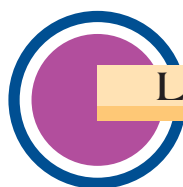
- What ethical issue(s) do you face?
 - *Contradicting another professional*
 - *Notifying another health care practice that misinformation is being disseminated to patients*

- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue?
 - *Based on selection criteria guidelines for the assessment of dental radiographic need developed by a panel of experts (U.S. Department of Health and Human Services: The Selection of Patients for Dental Radiographic Examinations. Revised 2004 by the American Dental Association: Council on Dental Benefit Program, Council on Dental Practice, Council on Scientific Affairs), radiation therapy for cancer is not likely to contraindicate necessary dental radiographs.*
- What choices of action do you have? What are the worst- and best-case scenarios of your choices of action?
 - *Tell the patient the nurse was wrong.*
 - *Worst case: The patient's stress level accelerates. The patient loses confidence in the nurse or in the dental hygienist, depending on whose argument against (nurse) or for (dental hygienist) the dental radiographs was stronger, and who the patient is more inclined at the time to believe. The patient reports the conflict of information back to the nurse who may interpret the dental hygienist's intentions as unprofessional.*
 - *Best case: Use language that tactfully explains that the nurse's area of expertise centers on the radiation used for the treatment of the patient's cancer and that the dental hygienist and dentist adhere to strict expert-developed guidelines when recommending dental radiographs.*
 - *Contact the nurse to educate her regarding dental radiographs and radiation therapy for cancer.*
 - *Worst case: The nurse becomes offended at being corrected.*
 - *Best case: The dental hygienist does not have the expertise regarding the parameters of the radiation therapy, so contacting the nurse and discussing the need for dental radiographs, the dental hygienist and nurse can collaborate care for the patient that is safe and lets the patient know that care is being coordinated through a team effort.*
 - *Contact the cancer treatment center to report the nurse's lack of knowledge regarding dental radiographs.*
 - *Worst case: The patient may have misunderstood, and the nurse may not have told her to avoid dental radiographs, or the patient may have other reasons for not wanting dental radiographs and fabricated the story about the nurse's recommendation against the radiographs.*
 - *Best case: The dental hygienist obtains peace of mind, knowing that she did not ignore a problem regarding the dissemination of incorrect information possibly to other patients.*
 - *Provide the patient with a brochure or direct the patient to the American Dental Association's Web site http://www.ada.org/sections/professional-Resources/pdfs/topics_radiography_chart.pdf where she can print out the expert recommended guidelines for radiographic assessment of need to bring to the attention of the nurse when she returns for radiation therapy.*
 - *Worse case: Relying on the patient to present this information to the nurse may increase the patient's stress level as she may feel caught between two differing professional opinions. Depending on how the material is presented to the nurse, she may become offended at being corrected, and could misinterpret the dental hygienist's intentions as unprofessional behavior.*
 - *Best case: The patient's confidence in the dental hygienist's explanation regarding assessment of radiographic need may increase upon seeing documentation by experts and she may feel like a more active participant in her treatment choices and want to bring the document to the nurse.*

(continued)

- Determine and defend your choices of action.
 - *Empathically respond to the patient by acknowledging the nurse's concern that excess radiation be avoided. Tactfully explain, and present the patient with evidence-based recommendations that a dental radiographic examination will not expose her to an excessive radiation dose. Inform the patient that the oral health care team will consult with the nurse to discuss how best to meet the patient's oral wellness needs while cancer treatment continues. Contact the nurse to explain the oral health care team's need to coordinate treatment for the patient that is safe and will meet her needs. In addition to explaining the need for a radiographic assessment, input would be sought from the nurse regarding specific risks to oral wellness and potential side effects of cancer treatment so that oral self-care strategies taught to the patient can achieve maximum effectiveness. Solicite the nurse's assistance in reinforcing these strategies with the patient.*
 - *This course of action opens communication between all parties and corrects misinformation.*

It is important to remember that when facing an ethical issue, there may be more than one correct action.



LEARNING ACTIVITY

1. **Research the potential risks to oral wellness of chemotherapy and radiation therapy. Prepare an educational program on effective oral self-care for the patient undergoing chemotherapy and radiation therapy. Contact a cancer center or cancer support group to present your in-service program.**

LEARNING TIPS

These application exercises provide you with various and innovative ways to develop your knowledge base, application skills, and opportunity to solve problems. Many suggested activities prompt you to think outside the box. Do not consider this additional work, but have fun! Be creative and use the suggested activities to demonstrate your potential as a skilled, caring, and dedicated dental hygiene professional.

DID YOU NOTICE?

Can you come up with other ideas for suggested activities for this sample case?

Consider modifying your in-service educational program to present to the medical professionals who provide cancer treatments to patients.

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LEARNING TIPS

Each case provides a bibliography of resources for further reference. As you work through the case questions, if you do not understand a term or fail to see why an answer is correct, the references listed in the bibliography can assist you in learning more about that topic.

DID YOU NOTICE?

If a beginning student struggles with understanding how this patient's root exposure contributes to sensitive teeth, the resources for learning more about this can be found by consulting the list of reference materials.

If you want to spot-test your knowledge on a topic, for example, fluorides, turn to the study question index and its listing of question numbers by case to assist you with locating each of the questions pertaining to fluorides.

ANCILLARIES

- A study question index by topic completes the book. This index can help you quickly locate information or a study question on each of the topics covered in the cases. Use the index to further your practice and enhance your review study.
- <http://www.myhealthprofessionskit.com/> a companion Web site enhances your learning experiences. All the images from the cases are available to you on-line where you can review them in greater detail. Using image manipulation features on your computer such as a zoom tool and brightness and contrast scales you can enlarge and enhance the images. In addition to assisting you with reading the images, the ability to enlarge and zoom in on details, and to lighten and darken the images provides you with a simulated experience of reading digital radiographs.

Answering the electronic version of the book's study questions posted to *myhealthprofessionskit* allows your instructor to provide feedback as you progress through the cases, and you will find blank patient history synopsis forms, clinical examination charts, and risk assessment forms that can be printed for use with the exercises in the book or as assigned by your instructor. Up-to-date links to data bases and search engines provide ready access to scientific literature.

The companion Web site *myhealthprofessionskit* also offers you the opportunity to gain real-life experience by producing your own patient case study. Once you begin to treat patients at your clinical academic setting your instructor may provide you with this opportunity to document your assessment, diagnoses, treatment plan, implementation strategies, and evaluation of a real-life case patient, start to finish. The objective of this project is to help you integrate basic sciences with patient care and to link dental hygiene theories with effective clinical application; in essence, to gain experience in professional decision making. The capstone to developing the case is to present it to the class, your professional peers, for discussion. In addition to the guidelines that your instructor provides, you will find instructions for selecting a patient, guidelines for documentation, a comprehensive tutorial on obtaining intraoral photographs, and tips for developing your classroom presentation.

Completing this tutorial on how to use this book while working through the sample case has prepared you for the challenges that await in the next 15 cases. Refer back to this chapter for instruction and clarification of the exercises and activities as your knowledge base grows and you progress from a basic level of study toward competency.

CHAPTER 3

CASE A Maya Patel



SITUATION

Maya Patel's mother brought her to the dental office today for her six months' oral prophylaxis. Maya appears unnaturally stiff and short of breath. She seems to have some difficulty answering when questioned about her self-care. Maya does, however, appear overly willing to cooperate and is opening and closing a poetry journal she has brought with her.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Identify developmental normalities and abnormalities of the dentition.
 - B. Identify the normal range of vital signs in the pediatric patient.
 - C. Recognize oral conditions of the tongue.
 - D. Identify side effects of medications used to treat asthma.
2. **Obtain and interpret radiographs.**
 - A. Identify anatomic structures radiographically.
 - B. Determine the recommended oral radiographic projection for a pediatric patient.
 - C. Recognize the cause of radiographic image distortion.
3. **Plan and manage dental hygiene care.**
 - A. Appropriately manage the pediatric patient for successful completion of treatment.
 - B. Individualize oral health care instructions for the pediatric patient.
 - C. Recognize the signs of an emergency situation and initiate appropriate management actions.
4. **Perform periodontal procedures.**
 - A. Recognize microorganisms associated with gingivitis.
 - B. Select the most appropriate instruments for subgingival deplaquing for the pediatric patient with gingivitis.
5. **Use preventive agents.**
 - A. Select teeth for sealant placement.
 - B. Recommend the appropriate preventive agent for the pediatric patient.
 - C. Select professionally applied topical fluoride treatment based on patient's needs.
6. **Provide supportive treatment services.**
 - A. Determine the appropriate method of stain removal.
 - B. Demonstrate knowledge of impression-taking procedure.
 - C. Identify nutritional data critical to oral health.
7. **Demonstrate professional responsibility.**
 - A. Differentiate between protocols that protect and actions that violate privacy rights of the patient.
 - B. Maintain patient health data to reduce the risk of legal implications for the practice.

PEDIATRIC PATIENT—Maya Patel
PATIENT HISTORY SYNOPSIS

Age 9 years
Gender female
Height 4' 5"
Weight 70 lbs.

VITAL SIGNS

Blood Pressure 100/60 mm Hg
Pulse Rate 110 bpm
Respiration 20 rpm

1. Under care of physician
Yes ☒ No ☐ Condition: asthma
2. Hospitalized within the last 5 years
Yes ☐ No ☒ Reason: _____
3. Has or had the following conditions
none
4. Current medications
montelukast sodium (Singulair®)—leukotriene receptor
antagonist albuterol (Proventil HFA®)—bronchodilator
inhaler
5. Smokes or uses tobacco products
Yes ☐ No ☒
6. Is pregnant
Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Has had several emergency room visits for breathing difficulty.

DENTAL HISTORY

Keeps regular six-month appointments for oral prophylaxis at which time she has professionally applied fluoride treatments. Uses a fluoride toothpaste. Exaggerated gag reflex and mouth breathing. Impressions for study casts have been indicated to evaluate occlusion.

SOCIAL HISTORY

Family moved to the United States from India six years ago. Practices the Hindu religion. Maya is a good student in the fourth grade and likes to write poems.

CHIEF COMPLAINT

Nervous about dental treatment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2																
Probe 1			213				212	213	312	212				323		
F																
P																
Probe 1			213				212	212	212	212				323		
Probe 2																
R																
Probe 2																
Probe 1			213				212	212	212	212	213			323		
L																
F																
Probe 1			213				323	323	323	323	223			323		
Probe 2																

CURRENT ORAL HYGIENE STATUS

Generalized marginal plaque with slight bleeding on probing. Slight supragingival calculus lingual surfaces of the mandibular anterior teeth. Slight generalized brown stain. Flosses occasionally.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Slight tongue thrust. Slight gingival sensitivity distal to the mandibular left permanent canine. Maxillary left primary first molar is mobile.

 Clinically visible carious lesion

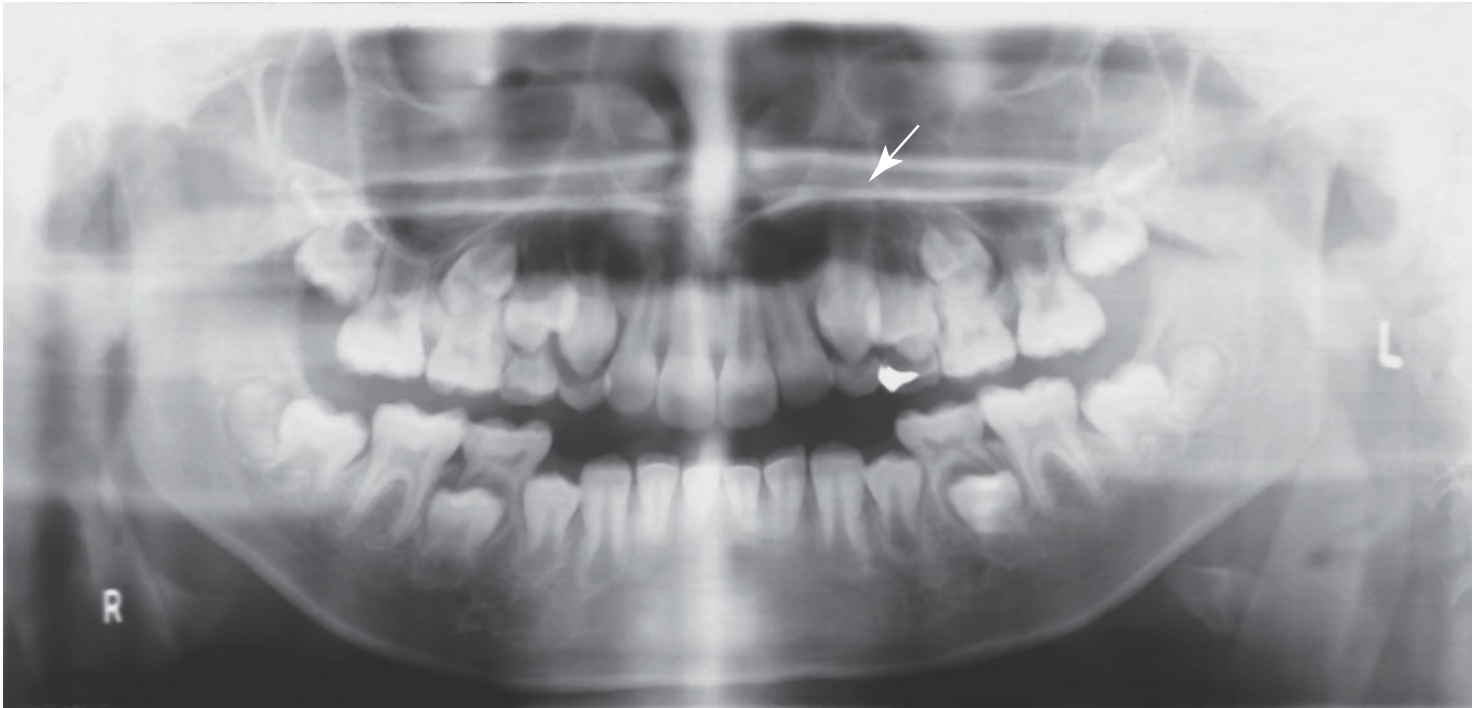
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy



A	B	C	D	E	F	G	H	I	J
212	212	212					212	212	213
212	212	212					212	212	213
212									213
212									212
T	S	R	Q	P	O	N	M	L	K

Pediatric Clinical Examination





CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. The anterior teeth exhibit which of the following conditions?
 - A. Perikymata
 - B. Hypoplasia
 - C. Fluorosis
 - D. Mamelons
 - E. Attrition
2. Which of the following best describes this patient's vital signs?
 - A. Respiration rate is considered high.
 - B. Respiration rate is considered low.
 - C. Pulse rate is considered high.
 - D. Pulse rate is considered within normal range.
 - E. Blood pressure is considered high.

Competency Level Questions

3. The raised, white finding that appears between the mandibular left permanent canine and the mandibular left primary second molar is most likely a(n)
 - A. Aphthous ulcer
 - B. Mandibular torus
 - C. Developmental cyst
 - D. Retained primary root tip
 - E. Erupting permanent premolar
4. Which of the following is the correct assessment of the appearance of this patient's tongue?
 - A. Coated
 - B. Fissured
 - C. Lymphangioma
 - D. Macroglossia
 - E. Ulcerated
5. From the following list select the four possible side effects of this patient's medications
 - A. Melanin pigmentation
 - B. Brown staining of teeth
 - C. Xerostomia
 - D. Sore throat
 - E. Delayed eruption
 - F. Gingival bleeding
 - G. Taste changes
 - H. Early childhood caries (ECC)
 - I. Increased anxiety

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Question

6. What is the name of the anatomic structure seen as a horizontal radiopacity above the maxillary teeth (arrow) in the panoramic radiograph?
 - A. Incisive foramen
 - B. Hard palate
 - C. Nasal fossae
 - D. Nasal septum
 - E. Median palatine suture

Competency Level Questions

7. Which of the following is the best reason why the panoramic radiograph was chosen over intraoral radiographs for this patient?
 - A. There is a possibility of an asthma attack.
 - B. The patient must remain in an upright position.
 - C. The patient has a hypersensitive gag reflex.
 - D. The panoramic radiograph has a lower radiation dosage.
 - E. The patient is nervous about treatment.
8. What is the reason for the shortened appearance of the mandibular incisors on the panoramic radiograph?
 - A. Teeth tipped out of the focal trough
 - B. External physiologic resorption
 - C. Apices not fully formed
 - D. Microdontia of the central and lateral incisors
 - E. Incorrect vertical angulation of the x-ray beam

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

9. This patient's behavior today may be clinical signs of each of the following EXCEPT one. Which one is the EXCEPTION?
 - A. Asthma attack onset
 - B. Cultural background
 - C. Moderate anxiety
 - D. Medication side effects
10. Each of the following will help manage this patient's hypersensitive gag reflex during the taking of impressions EXCEPT one. Which one is the EXCEPTION?
 - A. Select a tray size to accommodate the size of the arches by trying the tray in the mouth before loading with impression material.
 - B. Direct the patient to quietly hum her favorite song while the tray is in place.
 - C. Ask the patient to breathe deeply through the nose during the procedure.
 - D. Press down on the anterior region of the tray first when seating in the mouth.
 - E. Explain the procedure to the patient with empathetic rapport, while maintaining confidence and authority.
11. What method of tongue debridement is recommended for this patient?
 - A. Rinse the mouth daily with an oxygenating mouth rinse.
 - B. Wipe the tongue with a mouthwash-treated tooth towelette.
 - C. Scrape the tongue with a tongue cleaner.
 - D. Irrigate the tongue with a dental water jet.
 - E. Recommend the use of a sugarless gum with xylitol.
12. What method of patient management would best serve this patient?
 - A. Show-tell-do
 - B. Oral sedation
 - C. Papoose board restriction
 - D. Hypnosis
 - E. Biofeedback

Competency Level Questions

13. Which of the following will assist in managing a possible emergency medical situation regarding this patient?
 - A. Premedicate with oral antibiotics.
 - B. Monitor blood pressure during dental hygiene treatment.
 - C. Request a recent prothrombin time.
 - D. Require that her mother remain in the room during treatment.
 - E. Place her Proventil® HFA inhaler on the bracket table ready for use.

14. Approximately halfway through the appointment, this patient complains of trouble breathing. The clinician should do each of the following EXCEPT one. Which one is the EXCEPTION?
- Continue conversation that calms the patient.
 - Terminate the dental procedure at once.
 - Remove all instruments from the patient's mouth.
 - Place the patient in the Trendelenberg position.
 - Administer a bronchodilator.

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

15. From the following list select the seven bacteria that can be expected to be associated with this patient's periodontal condition.
- Salmonella typhi*
 - Prevotella oris*
 - Fusobacterium nucleatum*
 - Bordetella pertussis*
 - Actinomyces naeslundii*
 - Prevotella intermedia*
 - Veillonella parvula*
 - Actinomyces israelii*
 - Streptococcus mitis*
16. Which of the following would be the best instrument for subgingival deplaquing this patient's bleeding sites?
- Ultrasonic scaling device
 - Anterior sickle scaler
 - Area-specific curets
 - Universal sickle scaler
 - Universal curet

USING PREVENTIVE AGENTS

Basic Level Question

17. Which of this patient's teeth should be indicated for sealants?
- Primary first molars
 - Primary second molars
 - Permanent first premolars
 - Permanent first molars
 - Permanent second molars

Competency Level Questions

18. Which of the following chemotherapeutics and preventive agents should be recommended for daily use for this patient?
- Self-applied fluoride
 - Phenolic-related essential oils
 - Oxygenating agents
 - Quaternary ammonium compounds
 - Chlorhexidine gluconate
19. Which of the following is the best choice for a professionally applied topical fluoride treatment for this patient?
- Acidulated phosphate fluoride
 - Neutral sodium fluoride
 - Stannous fluoride
 - Sodium monofluorophosphate fluoride

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Questions

20. Which of the following is the method of choice for extrinsic stain removal for this patient?
 - A. Rubber cup coronal polishing
 - B. Air-powder abrasive
 - C. Scaling and toothbrush prophylaxis
 - D. Toothbrushing with commercial prophylaxis paste
 - E. Ultrasonic scaling
21. Which of the following will most likely cause difficulty when taking impressions on this patient?
 - A. Sensitive gingiva
 - B. Tongue thrust
 - C. Pronounced overjet
 - D. Occlusal open bite
 - E. Hypersensitive gag reflex

Competency Level Question

22. Each of the following is considered critical to nutritional counseling for this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Cultural food preferences
 - B. Inclusion of person responsible for meal preparation
 - C. Medication interference with metabolism
 - D. Frequency of carbohydrate intake
 - E. Number of servings from food groups

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

23. How long should this patient's panoramic radiograph be retained by the practice?
 - A. For 5 years from the date of exposure
 - B. Until the patient turns 18 years of age
 - C. Until a new radiograph is taken to update this survey
 - D. Until the patient ceases to be a client of this practice
 - E. Indefinitely

Competency Level Questions

24. Discussing this patient's personal oral self-care habits, dental hygiene treatment plan, and goals for achieving oral health with her mother is in violation of the Health Insurance Portability and Accountability Act (HIPAA).

Protecting this patient's privacy is a HIPAA regulation.

- A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.
25. Placing a red sticker on this patient's dental record indicating that she is asthmatic is a good risk management strategy.

Tagging the patient record in this manner is acceptable because only oral health care personnel will handle the charts.

 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her and her caregiver identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: risk for an asthma attack

Evidenced by: potential for a medical emergency

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from fear and stress

Due to: fear related to dental treatment

Evidenced by: parent report and anxious behaviors

Goals: *to avoid an emergency situation involving an acute asthma attack; anticipate dental hygiene appointments without anxiety*

Dental hygiene actions/interventions: *communicate on the patient's level of understanding; use child-friendly techniques and equipment; use show-tell-do and modeling, when possible, so the child can observe the procedure being performed on a parent*

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: bacterial plaque and inadequate oral health behaviors

Evidenced by: presence of gingival inflammation and bleeding

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: future caries risk

Evidenced by: existing carious lesion

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: inadequate oral health behaviors and parental supervision

Evidenced by: gingivitis and caries

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this child patient (P), will toothpaste specifically marketed for children based on taste (such as Sensodyne® Pronamel Toothpaste for Children Gentle Mint) (I) as compared with toothpaste specifically marketed for children as free of artificial preservative or dyes (such as Tom's of Maine® Anitcavity Fluoride Toothpaste for Children) (C) increase compliance with effective oral self-care (O)?



MAKING ETHICAL DECISIONS

When the preparation for study casts begins, the patient states that she does not want to continue with the appointment and becomes upset and begins to sob. The patient's mother sternly converses with her in their primary language and then tells you to continue with the procedure, giving you permission to "do whatever it takes" to complete what is necessary.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. People from India who practice the Hindu religion consider cows sacred and do not eat beef. Review the nutrients available from the consumption of beef and recommend other nutritional sources for these nutrients to improve oral health.
2. Examine the ethnic, cultural, or regional dietary practices and/or problems present in the population in your area. Plan a three-day menu that would fulfill the recommended dietary allowance and incorporate food preferences for this population.
3. Discuss preappointment dental hygiene interventions that will create a child-centered, nonthreatening environment to minimize this patient's anxiety.

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PEARSON

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CHAPTER 4

CASE B Zack Ware



SITUATION

Zack Ware is a physically active sixth grader who spends his free time playing baseball and skateboarding with friends. Although he has always enjoyed the camaraderie of his peers, he has suffered teasing lately as he begins orthodontic treatment. To help maintain his acceptance, Zack has allowed his peers to talk him into trying spit tobacco, suggesting that professional athletes benefit from its use. His mother does not know about the tobacco use.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Classify facial profile.
 - B. Classify occlusion using Angle's system of malocclusion.
 - C. Recognize eruption/exfoliation patterns.
 - D. Identify the probable cause of nocturnal bruxism.
 - E. Recognize the need for orthodontic evaluation.
 - F. Differentiate dental fluorosis from other white spot lesions.
2. **Obtain and interpret radiographs.**
 - A. Interpret radiopaque and radiolucent findings present on radiographic images.
 - B. Identify oral conditions indicating the need for a cephalometric radiograph.
 - C. Identify anatomic planes used to position a patient for a cephalometric radiograph.
3. **Plan and manage dental hygiene care.**
 - A. Make oral self-care recommendations based on individual needs of the patient.
 - B. Recognize the cognitive development stages of adolescent patients.
 - C. Communicate effectively with the pediatric patient to improve motivation for oral self-care.
4. **Perform periodontal procedures.**
 - A. Use appropriate terminology when describing gingival appearance.
 - B. Identify the causes of gingival tissue changes.
5. **Use preventive agents.**
 - A. Utilize preventive agents based on patient assessment.
 - B. Select the appropriate type of fluoride based on patient assessment.
6. **Provide supportive treatment services.**
 - A. Select the appropriate stain removal method based on patient assessment.
 - B. Evaluate the quality of study cast models.
 - C. Determine the reasons for spit tobacco use among adolescents.
 - D. Plan oral health instruction for an adolescent using spit tobacco.
 - E. Determine the need for mouthguard protection.
7. **Demonstrate professional responsibility.**
 - A. Implement strategies that will elicit a thorough and complete health history.
 - B. Identify legal responsibilities of treating the adolescent patient.

PEDIATRIC PATIENT—Zack Ware
PATIENT HISTORY SYNOPSIS

Age 12 years
Gender male
Height 5' 1"
Weight 90 lbs.

VITAL SIGNS

Blood Pressure 112/68 mm Hg
Pulse Rate 74 bpm
Respiration 14 rpm

1. Under care of physician

Yes ☐ No ☒ Condition: _____

2. Hospitalized within the last 5 years

Yes ☐ No ☒ Reason: _____

3. Has or had the following conditions

none

4. Current medications

none

5. Smokes or uses tobacco products

Yes ☒ No ☐

6. Is pregnant

Yes ☐ No ☐ N/A ☒

MEDICAL HISTORY

Good health.

DENTAL HISTORY

Patient grew up in a region with a water supply that contained a high fluoride concentration (greater than 2 ppm). Currently in maxillary orthodontia. His mother reports that he has started to grind his teeth at night.

SOCIAL HISTORY

Patient lives with his working single mother. He is unsupervised from 3:00 P.M. until 6:30 P.M. Monday through Friday. Drinks several bottles of sports drinks throughout the day. When asked, he admits to trying spit tobacco.

CHIEF COMPLAINT

Patient is just getting used to the braces recently placed on his maxillary teeth. He is not happy about having to brush better or longer and expresses that he is angry about having to give up chewing bubble gum while in orthodontic treatment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2																
Probe 1	323	323	323	312	212	222	323	323	222	223	323			323	323	
F																
P																
Probe 1		323	323	323	312	212	212	212	212	213	323			323	323	
Probe 2																
R																
Probe 2		323	323	212	212	212	212	212	212	212	212			323	323	
Probe 1																
L																
F																
Probe 1		323	323	212	212	212	213	312	212	213	212			323	323	
Probe 2																
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

CURRENT ORAL HYGIENE STATUS

Generalized marginal plaque accumulation with slight bleeding on probing.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Mouth breather. Mandibular left primary molar is mobile.

Clinically visible carious lesion

Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy



L

R

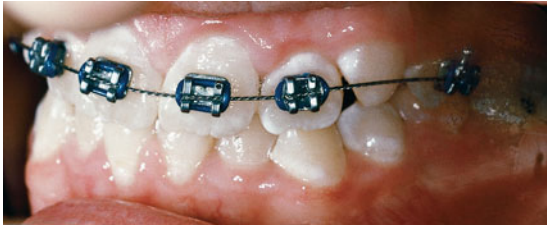




1 month prior to placement of orthodontic bands



Right side



Left side



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following terms best describes this patient's facial profile?
 - A. Mesognathic
 - B. Retrognathic
 - C. Prognathic
 - D. Orthognathic
2. What is Angle's classification of malocclusion for this patient?
 - A. Class I
 - B. Class II, Division 1
 - C. Class II, Division 2
 - D. Class III
3. The primary mandibular left second molar will most likely be the next tooth exfoliated.
The mandibular left second premolar will erupt into this position.
 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.

Competency Level Questions

4. Which of the following would be the most likely explanation for the nocturnal bruxism reported by his mother?
 - A. Stress of being teased by peers
 - B. Uneven incisal edges of the anterior teeth
 - C. Chewing bubble gum
 - D. Occlusal interferences
 - E. Retained primary teeth
5. All of this patient's permanent teeth are developing normally.
This patient's arch space is adequate for the eruption of the permanent teeth.
 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.
6. What is the most likely assessment of the white spots observed on the anterior teeth?
 - A. Caries
 - B. Remineralization
 - C. Abrasion
 - D. Fluorosis
 - E. Wear facets

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

7. The radiopacities on the permanent mandibular first molars, visible on the panoramic radiograph, are most likely
 - A. Carious lesions
 - B. Enamel pearls
 - C. Processor artifacts
 - D. Orthodontic brackets
 - E. Amalgam restorations

8. For each finding visible on the radiographs, select the best option for the most likely interpretation. (Answers may be used only once.)

Description of radiographic finding	Most likely interpretation
____ 1. Wide radiopacity superior to maxillary central incisors	A. Dental sac B. Exfoliating primary molar
____ 2. Radiolucency encircling the mandibular left third molar	C. Region of no radiation exposure D. Amalgam restoration
____ 3. Small radiopaque object near the occlusal edge of the mandibular right first molar	E. Cephalostat ear rod
____ 4. Radiopaque circle-shaped object near the external auditory meatus	
____ 5. Faint radiopaque object superior to the mandibular left second premolar	

9. The cephalometric radiograph was exposed on this patient to assess which one of the following?
- Periodontal status
 - Growth and development
 - Presence of caries
 - Sinus cavity congestion
 - Detection of precancerous lesions

Competency Level Questions

10. The radiopaque object visible at the patient's nasion on the cephalometric radiograph is used to align the
- Midsagittal plane
 - Frankfort plane
 - Occlusal plane
 - Vertical plane
 - Mandibular plane
11. Which of the following is the most likely reason for the widened appearance of the pulp chambers of the mandibular canines visible on the panoramic radiograph?
- Internal resorption
 - External resorption
 - Cervical burnout
 - Incomplete root formation
 - Nocturnal bruxism

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Question

12. Which of the following would be the best recommendation for oral self-care for this patient?
- Power toothbrush
 - Oral irrigation device
 - Floss threader
 - Sulcus brush
 - Wooden wedge

Competency Level Questions

13. Which of the following characteristics of development is relevant to this patient's age group and managing his preventive oral health self-care instruction?
- Incomplete development of a sense of logic will limit an explanation of the disease process.
 - Continued dependence on his mother will necessitate parental influence to achieve optimal oral health self-care.

- C. A heightened sense of imagination may increase anxiety related to his lack of adequate self-care behaviors.
 - D. Orientation to future possibilities will enhance acceptance of preventive regimens discussed today.
 - E. An overriding sense of invincibility will promote a lack of concern for developing good oral health care habits now.
14. Which of the following paired actions will most likely result in an increase in successful oral health education for this patient?
- A. Consult his mother to complete a dental history and determine her role in his oral home self-care.
 - B. Assess the patient's oral conditions and document oral problems to show him a visual progression of his developing oral conditions.
 - C. Investigate his personal interests to determine what motivates him and present him with a new oral hygiene aid.
 - D. Determine his current self-care regimen and suggest he increase the time spent performing self-care techniques.

PERFORMING PERIODONTAL PROCEDURES

Basic Level Question

15. Which of the following terms best describes the appearance of the maxillary facial gingiva before orthodontic intervention?
- A. Knifelike
 - B. Rolled
 - C. Cratered
 - D. Clefting
 - E. Blunted

Competency Level Question

16. Which of the following is the most likely explanation for the appearance of the maxillary facial gingiva before orthodontic intervention?
- A. Erupting teeth
 - B. Subgingival calculus
 - C. Spit tobacco use
 - D. Mouth breathing
 - E. Carbohydrate drinks

USING PREVENTIVE AGENTS

Competency Level Questions

17. Each of the following should be recommended for this patient EXCEPT one. Which one is the EXCEPTION?
- A. Sealants
 - B. Fluoride varnish
 - C. Enamel microabrasion
 - D. Oral irrigation
 - E. Dietary counseling
18. It is highly likely that this patient will consume another sports drink immediately upon leaving the office following his fluoride treatment. Anticipating this, which of the following professionally applied fluoride treatments would be recommended?
- A. 2% NaF gel
 - B. 5% NaF varnish
 - C. 1.23% APF foam
 - D. 1.23% APF aqueous solution
 - E. 8% SnF aqueous solution

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Questions

19. Which of the following extrinsic stain removal polishing methods is indicated for this patient?
 - A. Rubber cup
 - B. Manual toothbrush
 - C. Air-powder abrasive
 - D. Porte polisher
20. Which of the following criteria for an acceptable cast applies to this patient's finished casts?
 - A. Mean occlusal planes are parallel to the bases.
 - B. Posterior borders are at right angles to the bases.
 - C. If stood on the posterior base, the casts would rest together naturally.
 - D. Anterior border of the mandibular cast is cut arc shaped.
 - E. Proportions are two-thirds anatomic and one-third art.

Competency Level Questions

21. This patient is too young to get addicted to tobacco use.
 Adolescents may experiment with tobacco because of insecurity, rebelliousness, and identification with role models.
 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.
22. Each of these statements is accurate and can be used to assist this patient in making his decision to use spit tobacco EXCEPT one. Which one is the EXCEPTION?
 - A. Highly addictive
 - B. Contains nicotine
 - C. Helps athletic performance
 - D. Not a safe alternative to cigarettes
 - E. Contributes to oral diseases
23. A mouthguard made of hard plastic thermoset resin is indicated for this patient *because* skateboarding increases his risk of oral injury.
 - A. Both the statement and reason are correct and related.
 - B. Both the statement and reason are correct but not related.
 - C. The statement is correct but the reason is not.
 - D. The statement is not correct but the reason is correct.
 - E. Neither the statement nor reason is correct.

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Competency Level Questions

24. Each of the following will help obtain an accurate medical history and deal appropriately with conditions and concerns regarding this patient EXCEPT one. Which one is the EXCEPTION?
 - A. This patient can give informed consent to undergo treatment.
 - B. This patient's parent should be encouraged to complete his health history *with* her son and not *for* him.
 - C. The dental hygienist should explain oral health findings and the care plan to both the patient and his parent.
 - D. The dental hygienist should provide an opportunity for the patient to contribute to the health history alone, away from his parent.
 - E. The health history of the adolescent patient is constantly changing and should be updated regularly.

25. The dental hygienist has a responsibility to report this patient's tobacco use to his mother.

Reporting his tobacco use is a form of paternalism.

- A. The first statement is true, the second statement is false.
- B. The first statement is false, the second statement is true.
- C. Both statements are true.
- D. Both statements are false.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him and his caregiver identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: increased risk for oral injury

Evidenced by: self-reported skateboarding

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in wholesome facial image

Due to: presence of braces

Evidenced by: lack of understanding and acceptance of orthodontic bands in improving functionality and appearance

Goals: *to understand and accept that the outcomes of orthodontic intervention will include multiple benefits; to assist the success of orthodontic intervention by improving oral self-care*

Dental hygiene actions/interventions: *develop a rapport on the patient's level of understanding to obtain answers to questions regarding why he is dissatisfied/embarrassed by wearing braces; assist the patient in developing strategies to deal with the perceived inconvenience of wearing braces; educate the patient on the benefits of orthodontic intervention and the failures that may result if self-care instructions are not followed*

Deficit identified in biologically sound and functional dentition

Due to: future caries risk

Evidenced by: existing caries; consuming carbohydrate drinks

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: lack of knowledge regarding the link of spit tobacco and health

Evidenced by: self-report that athletes use it, so it must be beneficial

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: inadequate oral health behaviors and parental supervision

Evidenced by: gingivitis and caries; use of spit tobacco

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

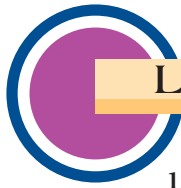
For this patient undergoing orthodontic intervention (P), will floss threaders (such as GUM® Eez-Thru® Floss Threaders) (I) as compared with an interproximal brush (such as Oral-B® Interdental Brush System (C) increase compliance with effective oral self-care (O)?



MAKING ETHICAL DECISIONS

The patient told you he has tried spit tobacco. When questioned further, he states that it was only one time and that he does not plan to use it again. He specifically asks you not to tell his mother.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Divide into small groups of three to five students. Each group should list one patient-centered goal for each dental hygiene diagnosis for this patient. Compile the goals as a group and report to the class. Goals may be written for the cognitive, psychomotor, or affective domains or for oral health status improvement. Each goal should have a subject, verb, criteria for measurement, and a timeline for when the patient is to have achieved the goal.
2. Applying a cotherapeutic, collaborative, patient-centered view of the dental hygiene process of care, list strategies that can be utilized to involve and motivate the adolescent patient in the care planning process.

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PEARSON

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CHAPTER 5

CASE C Andrew Christianson



SITUATION

Andrew Christianson seems lethargic during today's treatment, and appears to have difficulty understanding what is expected of him. He needs to be continuously reminded to stay open during the procedures. When asked to demonstrate what he has just learned following self-care instructions, he seems to lack an understanding of what he is supposed to do.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Distinguish between oral conditions encountered during an intraoral examination.
 - B. Identify various conditions of the teeth.
 - C. Describe caries observed clinically.
 - D. Classify tooth stains.
 - E. List possible adverse effects of medications.
2. **Obtain and interpret radiographs.**
 - A. Identify the cause of radiographic errors.
 - B. Demonstrate knowledge of the radiographic appearance of normal anatomical conditions of the developing tooth.
 - C. Interpret radiographs for deviations from the normal and pathologic conditions.
 - D. Distinguish normal tooth development from pathologic conditions.
3. **Plan and manage dental hygiene care.**
 - A. Recognize potential triggers of a gag reflex.
 - B. Provide dental hygiene treatment based on the patient's needs.
 - C. Recognize conditions of the oral cavity that may contraindicate treatment.
 - D. Utilize a communication style that meets the needs of the pediatric patient.
4. **Perform periodontal procedures.**
 - A. Demonstrate an understanding of the stages of biofilm formation.
5. **Use preventive agents.**
 - A. Select appropriate teeth for sealant placement.
 - B. Prescribe appropriate home fluoride therapy.
6. **Provide supportive treatment services.**
 - A. Select the appropriate stain removal technique based on patient needs.
 - B. Counsel the pediatric patient for improved nutrition.
7. **Demonstrate professional responsibility.**
 - A. Apply ALARA philosophy when exposing radiographs on pediatric patients.
 - B. Recognize dental neglect and its link to child abuse.
 - C. Utilize effective communication techniques to educate the pediatric patient's caregiver on the importance of the child's oral health.

PEDIATRIC PATIENT—Andrew Christianson
PATIENT HISTORY SYNOPSIS

Age 8 years
 Gender male
 Height 4' 3"
 Weight 58 lbs.

VITAL SIGNS

Blood Pressure 108/62 mm Hg
 Pulse Rate 80 bpm
 Respiration 16 rpm

- Under care of physician
 Yes ☒ No ☐ Condition: attention deficit hyperactivity disorder (ADHD)
- Hospitalized within the last 5 years
 Yes ☐ No ☒ Reason: _____
- Has or had the following conditions
seasonal allergies
- Current medications
Dextroamphetamine and amphetamine (Adderall®)
- Smokes or uses tobacco products
 Yes ☐ No ☒
- Is pregnant
 Yes ☐ No ☐ N/A ☒

MEDICAL HISTORY

ADHD is predominately inattentive-type (as opposed to hyperactive-impulsive-type). Processes information less quickly and less accurately than other children. Seldom acting impulsive or hyperactive, but often daydreaming, slow moving, and lethargic. Physician has recently changed patient's medication.

DENTAL HISTORY

No history of professional dental or dental hygiene treatment. Mother reports that he may have participated in oral screenings and school fluoride treatments in the past, but she doesn't see a need for spending money on "baby" teeth. She buys whatever toothpaste is on sale and cannot recall if what he is using currently contains fluoride.

SOCIAL HISTORY

Attends an after-school program at the neighborhood recreation center where his favorite activity is playing video games. Has access to snack vending machines and drinks a lot of soda.

CHIEF COMPLAINT

Mother is concerned that the family cannot afford extensive dental care. Her husband, who has been out of work for a year, recently secured a job that offers dental insurance coverage for 2 dental hygiene visits per year, but is less generous with restorative treatment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2																
Probe 1			212				112	212	212	211				212		
F																
P																
Probe 1							112	212	212	211				111		
Probe 2																
R																
Probe 2							111	111	111	111			111		212	
Probe 1																
L																
F																
Probe 1							112	211	112	211			111		211	
Probe 2																

CURRENT ORAL HYGIENE STATUS

Moderate anterior plaque. Materia alba accumulating around large caries. Brushes up and down in the morning and before bed, when he remembers.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Mouth breather.

 Clinically visible carious lesion

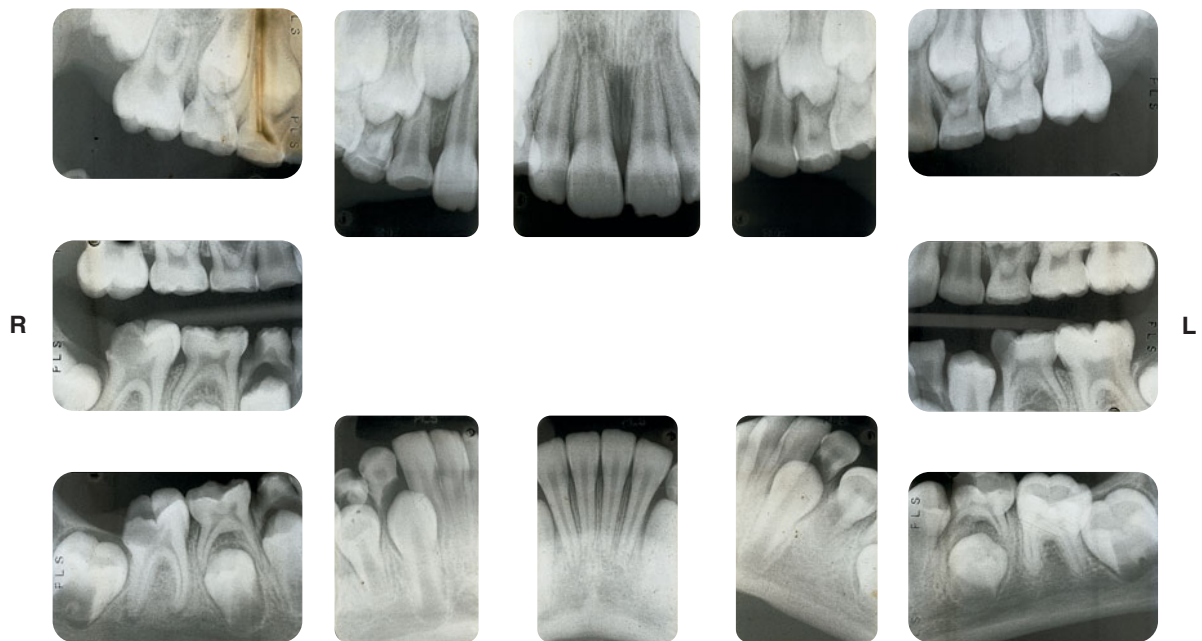
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy



PEDIATRIC CLINICAL EXAMINATION

		A	B	C	D	E	F	G	H	I	J		
		212	212	111					111	112	212		
R		212	211	111					111	112	112	L	
		212	211	111					111	112	112		
		211	211	111					111		112		
		T	S	R	Q	P	O	N	M	L	K		



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following is the most likely assessment of the bilateral white lines (arrows) observed on the right and left facial side of the arches?
 - A. Linea alba
 - B. Mucogingival line
 - C. Free gingival margin
 - D. Exotosis
 - E. Scarring
2. The yellow spots observed on the occlusal surfaces of the primary maxillary right canine, first molar, and left canine are most likely
 - A. Dentin
 - B. Caries
 - C. Stained enamel
 - D. Food debris
 - E. Cementum
3. Which of the following accurately describes the defect observed on the incisal edge of the maxillary left central incisor?
 - A. Abfraction
 - B. Abrasion
 - C. Attrition
 - D. Erosion
 - E. Fracture

Competency Level Questions

4. Which of the following terms best describes this patient's caries?
 - A. Hidden or backward
 - B. Early childhood
 - C. Chronic
 - D. Arrested
 - E. Recurrent
5. Which of the following terms best describes the stains observed on the facial surfaces of the mandibular anterior teeth?
 - A. Intrinsic and endogenous
 - B. Intrinsic and exogenous
 - C. Extrinsic and endogenous
 - D. Extrinsic and exogenous
6. Which of the following is an oral adverse effect of this patient's medication?
 - A. Xerostomia
 - B. Early tooth loss
 - C. Increased risk for congenitally missing teeth
 - D. Intrinsic tooth staining
 - E. Mouth breathing

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

7. The brown stains on the maxillary right molar periapical radiograph and the left biting radiograph indicate that
 - A. These two films became overlapped in the automatic processor and stuck together while processing.
 - B. These film packets were opened before turning off the white light in the darkroom.
 - C. Saliva penetrated the outer protective paper wrapping of these film packets to contaminate the films.
 - D. These two films were rubbed together during transport to the darkroom and static electricity created artifacts.
8. The radiographic appearance of the primary mandibular canines indicates
 - A. Incomplete developing root structure
 - B. Congenitally missing root structure
 - C. External resorption
 - D. Internal resorption
9. The radiolucency surrounding the permanent mandibular left second molar is most likely
 - A. A dentigerous cyst
 - B. The dental sac
 - C. An abscess
 - D. The dental papilla
 - E. Sharpey's fibers

Competency Level Questions

10. Which of the following is the most likely reason for the wide appearance of the pulp chambers of the permanent maxillary central incisors?
 - A. Hypercementosis
 - B. Lack of formation of secondary dentin
 - C. Internal resorption
 - D. Sclerosis
 - E. Pulpal infection
11. The radiographs reveal an abscess on which of the following teeth?
 - A. Primary maxillary left first molar
 - B. Primary mandibular right canine
 - C. Permanent maxillary right canine
 - D. Permanent mandibular left second molar
 - E. Permanent mandibular right first molar
12. Which of the following primary teeth will most likely be exfoliated next?
 - A. Maxillary right first molar
 - B. Maxillary right canine
 - C. Mandibular left second molar
 - D. Mandibular left canine
 - E. Mandibular right first molar

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

13. Which of the following will most likely play a role in influencing this patient's gag reflex?
 - A. Shiny, edematous facial gingival tissue
 - B. Color and consistency of hard palate rugae
 - C. White coating on dorsal surface of tongue
 - D. Size and shape of uvula and tonsils
 - E. Eruption pattern of transitional dentition

14. Each of the following is recommended for this patient EXCEPT one. Which one is the EXCEPTION?
- Short appointments
 - Professional fluoride treatment
 - Full-mouth disinfection
 - Nutritional counseling
 - Monitoring of vital signs

Competency Level Questions

15. Following examination of the oral pharyngeal area, which of these would be contraindicated for this patient?
- Foam dispensed fluoride tray application
 - Conscious sedation with nitrous oxide
 - Use of compressed air for examining tissues
 - Cotton roll isolation of teeth for sealant placement
 - Placement of the patient in a supine position during treatment
16. Which of these actions is least likely to motivate this patient to better oral self-care?
- Comprehensively explain the causes of caries and what the patient can do to help prevent his adult teeth from ending up in the same condition as his decayed primary teeth.
 - Using disclosing solution, demonstrate brushing technique in the patient's mouth and then have him practice while you observe his ability to use the technique.
 - Use a lot of positive feedback and compliment the patient on his desire to want to learn better self-care for healthier teeth.
 - Provide a reward system such as placing a star sticker on the indices you use to score the patient's biofilm accumulation at each appointment.
 - Repeat the oral hygiene instructions multiple times and use several ways to explain the same message.

PERFORMING PERIODONTAL PROCEDURES

Basic Level Question

17. Order the stages leading to the formation of the soft deposit noted on the facial surfaces of the mandibular left and right central incisors. Match each letter with its proper sequence number.

Beginning within minutes after an abrasive has removed all material from the teeth surfaces.

- | | | |
|---------|---|--|
| 1. ____ |  | A. Filamentous bacteria and slender gram-positive rods grow. |
| 2. ____ | | B. Glycoproteins are absorbed into the enamel from the saliva. |
| 3. ____ | | C. Gram-positive cocci and rods (<i>Streptococcus mutans</i> and <i>Streptococcus sanguis</i>) accumulate. |
| 4. ____ | | D. Microorganisms arrange themselves perpendicular to the tooth to coalesce into a continuous mass. |
| 5. ____ | | E. Fusobacteria and gram-negative spirochetes and vibrios accumulate near the gingival margin. |
-

USING PREVENTIVE AGENTS

Basic Level Question

18. Which of the following permanent first molars should be recommended for sealant placement?
- A. Maxillary right
 - B. Maxillary left
 - C. Mandibular right
 - D. Mandibular left

Competency Level Question

19. Which of the following home-use fluorides should be recommended for this patient?
- A. Brush-on gel of 0.4% SnF₂ once daily
 - B. Oral rinse with 0.05% NaF once daily
 - C. Tray application of 0.5% APF once daily
 - D. Oral rinse with 0.2% NaF once weekly
 - E. Brush-on dentifrice containing Na₂PO₃F two to three times daily

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Questions

20. In addition to scaling, which of the following would be recommended for professional stain removal for this patient?
- A. Air-power polishing with sodium bicarbonate
 - B. Porte polisher with sodium fluoride
 - C. Oral irrigation with chlorhexidine gluconate
 - D. Power-driven prophylaxis with pumice
 - E. Toothbrushing with tartar control toothpaste
21. Each of the following must be assessed to assist this patient with caries control EXCEPT one. Which one is the EXCEPTION?
- A. Frequency of intake of cariogenic foods
 - B. Types of foods selected for snacks
 - C. Identification of food consistency (soft, sticky, etc.)
 - D. When fermentable carbohydrates are consumed
 - E. Number of calories consumed per day

Competency Level Question

22. Which one of these snacks reported as his favorites by the patient's mother would be least likely to produce acidic plaque precipitating demineralization of enamel?
- A. Cookies
 - B. Pretzels
 - C. Ice cream
 - D. Coke™
 - E. Gummy bears

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

23. Which of the following is the ALARA exposure setting for this patient's radiographs?
- A. Equivalent to the exposure setting used for adult radiographs
 - B. A reduction by one-fourth of the exposure setting used for adult radiographs
 - C. A reduction by one-third of the exposure setting used for adult radiographs
 - D. A reduction by one-half of the exposure setting used for adult radiographs

Competency Level Questions

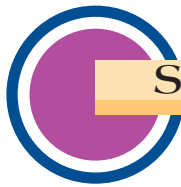
24. Neglect of oral health needs can be considered child abuse.

This patient's oral condition is most likely the result of child abuse.

- A. The first statement is true, the second statement is false.
- B. The first statement is false, the second statement is true.
- C. Both statements are true.
- D. Both statements are false.

25. Which of the following responses to this patient's mother's concerns regarding the value of professional preventive oral health care treatment is most helpful?

- A. "Not accepting the care plan for restoring Andrew's oral health could be considered child neglect."
- B. "We can see that you want the best for Andrew, and now that you understand the value of professional preventive dental and dental hygiene care, we want to assist you with meeting his oral health needs."
- C. "A responsible parent would accept the recommended treatment plan for getting Andrew's mouth back in shape."
- D. "If you do not agree to the comprehensive treatment plan for improving Andrew's oral health, then he is likely to encounter worse problems down the road."
- E. "We can't believe that you let Andrew's teeth get this bad."



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him and his caregiver identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: adverse side effects of medication

Evidenced by: elevated readings for vital signs

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: future caries risk; premature loss of primary teeth

Evidenced by: multiple, large caries present

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: mother's lack of preventive actions; lack of knowledge of preventive measures for oral health

Evidenced by: no history of preventive professional dental or dental hygiene care

Goals: *schedule and keep appointments to restore oral health; maintain regular preventive dental hygiene appointments; monitor patient's oral self-care for effectiveness; assist patient with developing lifelong sound nutritional habits*

Dental hygiene actions/interventions: *employ CAMBRA (Caries Management By Risk Assessment); educate the patient's caregiver on the value of primary teeth and their role in future oral health; include caregiver in oral self-care instructions for patient; enlist caregiver's help in keeping a food diary for the patient; use food diary to plan nutritional counseling*

Deficit identified in responsibility for oral health

Due to: lack of professional oral health care

Evidenced by: caries; plaque and stain accumulation

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this patient's caries risk (P), will xylitol bubble gum (such as Trident® Bubble Gum Flavor Chewing Gum with Xylitol) (I) as compared with a sugar-free sodium bicarbonate (baking soda) chewing gum (such as Eco-Dent® Between!) (C) assist with decreasing future caries risk (O)?



MAKING ETHICAL DECISIONS

After presenting the caries risk assessment and discussing a recommended course of treatment, the patient's mother explains that she is not interested in having his "baby teeth" treated, especially since he is not complaining of discomfort.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. **Develop a comprehensive oral hygiene instruction care plan for this patient. Then role-play the presentation with the patient's parent, explaining the value of early professional care and good oral self-care habits and the purpose of introducing preventive agents.**
2. **List the possible barriers this patient faces to achieving better oral health through altering his dietary habits. Develop suggestions and recommendations to help this patient and his caregiver overcome these barriers.**
3. **Keep a five-day food diary. Exchange your diary with a classmate. Each of you should then analyze the data noting the number of servings in each food group, the frequency of meals, and how often cariogenic foods were consumed. Together with your partner, create realistic goals for changes that will lead to improved nutrition.**

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CHAPTER 6

CASE D Katherine Flynn



SITUATION

Katherine Flynn enjoys her new job in the administrative office at the local community college. She is a petite, attractive woman who always presents for her four-month periodontal maintenance appointments impeccably dressed in business attire. Today she appears overly enthusiastic about her appointment, which may be indicative of apprehension.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Define classification of restorations.
 - B. Identify the components of a removable partial denture.
 - C. Recognize root caries risk factors.
 - D. Identify risks of tissue trauma caused by dentures.
2. **Obtain and interpret radiographs.**
 - A. Determine dental materials type by their radiographic appearance.
 - B. Identify radiographic artifacts.
 - C. Differentiate between normal radiographic anatomy and pathosis.
 - D. Interpret periodontal pathology radiographically.
3. **Plan and manage dental hygiene care.**
 - A. Prepare appropriately to prevent medical emergencies during treatment.
 - B. Plan treatment for a periodontal maintenance appointment.
 - C. Recognize risk factors for anxiety regarding dental treatment.
 - D. Identify contraindications to the use of pain control agents.
4. **Perform periodontal procedures.**
 - A. Identify risk and local contributing factors for periodontal disease.
 - B. Determine clinical attachment level (CAL).
 - C. Identify mucogingival involvement.
 - D. Identify when to use local drug delivery.
 - E. Select appropriate drug delivery therapy.
5. **Use preventive agents.**
 - A. Identify conditions that would benefit from fluoride therapies.
 - B. Recommend appropriate self-applied fluoride.
6. **Provide supportive treatment services.**
 - A. Select appropriate adjunct therapies for hypersensitive root surfaces.
 - B. Recommend appropriate therapy for para-functional habits.
7. **Demonstrate professional responsibility.**
 - A. Identify terms used to describe ethical principles.
 - B. Establish ethical priorities for dental hygiene interventions that place the patient's needs first.
 - C. Use effective patient communication that encourages patient cooperation with dental hygiene treatment.

ADULT-PERIODONTAL PATIENT—Katherine Flynn
PATIENT HISTORY SYNOPSIS

Age 53 years
 Gender female
 Height 5' 2"
 Weight 105 lbs.

VITAL SIGNS

Blood Pressure 103/62 mm Hg
 Pulse Rate 72 bpm
 Respiration 18 rpm

1. Under care of physician

Yes ☒ No ☐

Condition: angina pectoris,
rheumatoid arthritis

2. Hospitalized within the last 5 years

Yes ☒ No ☐

Reason: shoulder surgery

3. Has or had the following conditions

syncope

hormonal replacement therapy

tetracycline allergic response

4. Current medications

acetaminophen (Tylenol®)—nonnarcotic analgesic

diclofenac (Voltaren®)—nonsteroidal anti-inflammatory

diltiazem HCL (Cardizem®)—calcium channel

antagonist, antianginal

estradiol and norethindrone (CombiPatch®)—estrogen

and progestin combination

5. Smokes or uses tobacco products

Yes ☐ No ☒

6. Is pregnant

Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Although not currently taking nitroglycerin, she does keep a prescription for this drug.

DENTAL HISTORY

Reports fainting episode during last dental hygiene appointment due to extreme apprehension and anticipation of painful scaling of sensitive teeth. Patient embarrassed by this incident and appears worried that it will happen again.

Life long resident in a community with optimal levels of fluoride in the water.

SOCIAL HISTORY

Although she was left financially secure, this patient has expressed difficulty coping with the death of her husband last year. She continues to work outside the home to add structure and stimulation to her life.

CHIEF COMPLAINT

Hot and cold sensitive teeth, limiting her ability to enjoy certain foods. Concerned about the continuing gum recession along her lower anterior teeth.

CURRENT ORAL HYGIENE STATUS

Meticulous home care. Reports "wearing out" a toothbrush within a "couple of weeks." Patient uses a scrub method of brushing. She also uses floss, fluoride rinses, and rubber tip stimulators. Slight calculus present on the lingual surfaces of the mandibular anterior teeth; slight interproximal plaque detected especially around restoration margins.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	223	X	213	423	223	312	212	222	223	312	323	312	X	X	X
Probe 1	X	112	X	212	313	222	212	212	222	112	312	323	312	X	X	X
F																
P																
Probe 1	X	223	X	324	324	532	333	312	212	212	212	222	223	X	X	X
Probe 2	X	223	X	333	325	532	333	312	212	212	212	323	323	X	X	X
R																
L																
F																
Probe 1		333	623	423	313	111	321	111	111	123	321	223		112		
Probe 2		223	723	313	312	122	222	211	112	113	312	313		112		
		32	31	30	29	28	27	26	25	24	23	22		21	20	19

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Nocturnal bruxism. Class I mobility on the mandibular left and right lateral and central incisors; and the maxillary left second premolar. Early demineralization on the facial surfaces of the mandibular canines.

Clinically visible carious lesion

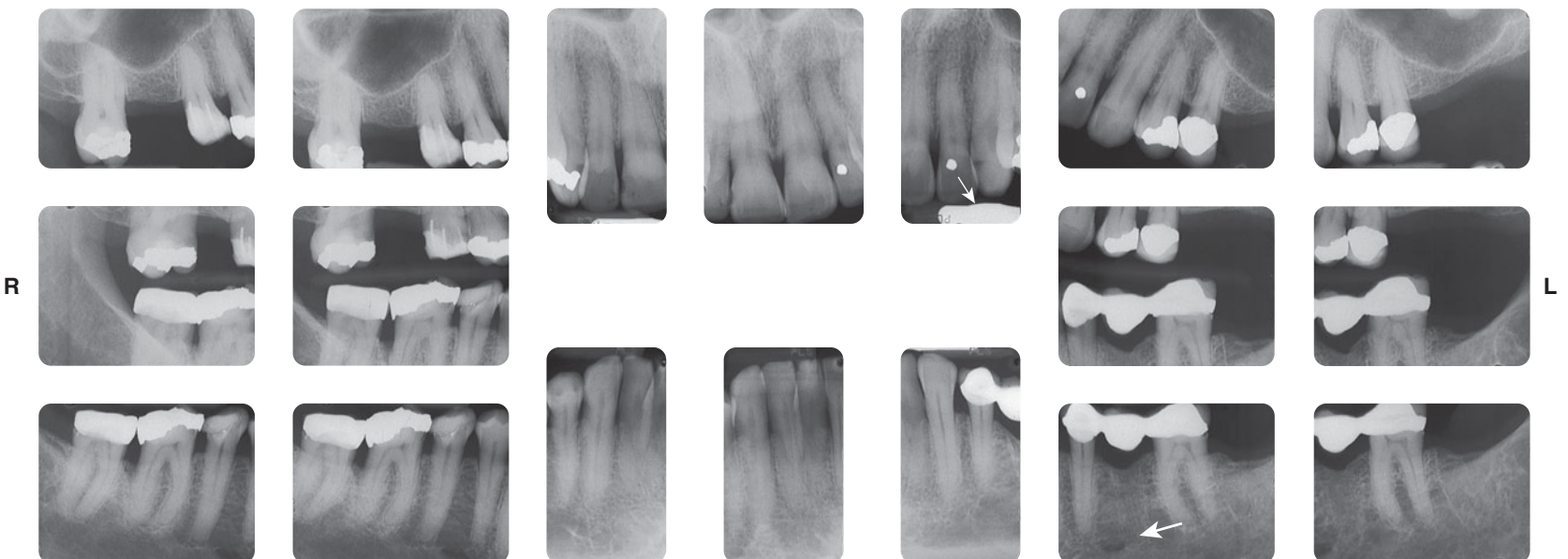
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Partial denture in place



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Question

1. What is the classification of restoration for the maxillary left lateral incisor?
 - A. Class I
 - B. Class III
 - C. Class IV
 - D. Class V
 - E. Class VI

Competency Level Questions

2. Which of the following abutment teeth support the removable partial denture rest?
 - A. Maxillary first molars
 - B. Maxillary anterior teeth
 - C. Mandibular left first premolar and first molar
 - D. Maxillary second premolars
3. Which of these is NOT a risk factor for root caries for this patient?
 - A. Prosthetic devices
 - B. Medications
 - C. Recession
 - D. Microbial biofilm
 - E. Fluoride history
4. What is the most likely assessment of the appearance of the patient's palate?
 - A. Frictional hyperkeratosis
 - B. Denture-induced fibrous hyperplasia
 - C. Denture stomatitis
 - D. Papillary hyperplasia
 - E. Squamous cell carcinoma

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

5. In addition to the composite restoration, which of the following dental materials is present on the maxillary right second premolar?
 - A. Post and core
 - B. Retention pins
 - C. Silver points
 - D. Gutta percha
6. The large radiopaque artifact present on the maxillary left lateral canine periapical radiograph and identified by the arrow is
 - A. Conecut error
 - B. An image of the partial denture clasp
 - C. An amalgam tattoo
 - D. An image of the film-holding device

7. Which of the following teeth presents with a composite restoration?
 - A. Maxillary right first premolar
 - B. Maxillary left first premolar
 - C. Maxillary left second premolar
 - D. Mandibular left first premolar
 - E. Mandibular right second premolar
8. The round radiolucency visible near the apex of the mandibular left first premolar (arrow) is interpreted as
 - A. The mental foramen
 - B. A residual cyst
 - C. A periapical abscess
 - D. A granuloma

Competency Level Question

9. The distal aspect of the mandibular right first molar reveals what periodontal condition?
 - A. Periodontal abscess
 - B. Vertical bone loss
 - C. Furcation involvement
 - D. Horizontal bone loss

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Question

10. Each of the following dental hygiene interventions will prevent the escalation of a medical emergency EXCEPT one. Which one is the EXCEPTION?
 - A. Resume upright chair position slowly after treatment.
 - B. Set an ammonia capsule within easy reach during treatment.
 - C. Provide prophylactic antibiotic premedication.
 - D. Request patient bring nitroglycerine to appointment.
 - E. Develop patient rapport that conveys warmth and empathy.

Competency Level Questions

11. Each of the following should be planned for this patient's periodontal maintenance appointment EXCEPT one. Which one is the EXCEPTION?
 - A. Deplaquing and removing calculus from affected teeth
 - B. Scaling the exposed root surfaces
 - C. Using subgingival instrumentation to disrupt biofilm
 - D. Reprobing the entire dentition
 - E. Evaluating and reinforcing oral self-care
12. Each of the following may be a contributing factor to this patient's dental anxiety EXCEPT one. Which one is the EXCEPTION?
 - A. Medications taken
 - B. Past dental experiences
 - C. Desire to appear in control
 - D. Fear of pain
 - E. Blood pressure
13. Which one of the following options for pain control during instrumentation for this patient has the potential to compromise use of her medications?
 - A. Oral conscious sedation (diazepam)
 - B. Inhalation sedation (nitrous oxide)
 - C. Topical benzocaine (Hurricane)
 - D. Noninjectable anesthetic gel (Oraqix)
 - E. Injection mepivacaine (mepivacaine 3%)

PERFORMING PERIODONTAL PROCEDURES*Basic Level Questions*

14. From the following list select the six risk and contributing factors for periodontal disease for this patient?
 - A. Tetracycline allergy
 - B. Estrogen therapy
 - C. Contour of restorations
 - D. Recent surgery (shoulder)
 - E. Removable partial denture
 - F. Medications
 - G. Stress
 - H. Gender
 - I. Age
15. The maxillary right canine has 4 mm of recession on the facial surface. What would be the clinical attachment loss for this tooth?
 - A. 3 mm
 - B. 4 mm
 - C. 5 mm
 - D. 6 mm
 - E. 7 mm
16. Which of the following teeth is most at risk for mucogingival involvement?
 - A. Maxillary right first premolar
 - B. Maxillary right lateral incisor
 - C. Maxillary left second premolar
 - D. Mandibular left first molar
 - E. Mandibular right lateral incisor

Competency Level Questions

17. Based on the reassessment data at the six-week reevaluation appointment, which of the following teeth would be an ideal candidate for local drug delivery therapy?
 - A. Maxillary right second molar
 - B. Maxillary left second premolar
 - C. Mandibular left first molar
 - D. Mandibular left first premolar
 - E. Mandibular right first molar
18. Which of the following locally applied therapeutic agents would be most appropriate for this patient?
 - A. Arestin® (1 mg minocycline hydrochloride)
 - B. Atridox® (10% doxycycline hyclate)
 - C. PerioChip® (2.5 mg chlorhexidine gluconate)
 - D. Actisite® (25% tetracycline)

USING PREVENTIVE AGENTS*Basic Level Question*

19. Each of the following is a reason to recommend home fluoride use for this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Fluoride history
 - B. Areas of demineralization
 - C. Root exposures
 - D. Salivary flow factors
 - E. Multiple restorations

Competency Level Question

20. Which of the following fluoride recommendations would provide this patient with the best therapy?
- A. Use of 1 ppm fluoridated water
 - B. Daily 520 ppm fluoride rinse
 - C. Weekly 900 ppm fluoride rinse
 - D. Brush-on 1,000–1,500 ppm fluoride gel

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

21. Which of the following chemical agents would be the most appropriate to recommend for at-home therapy to help alleviate the sensitivity of this patient's teeth?
- A. Bonding agent
 - B. Potassium nitrate
 - C. Sodium fluoride
 - D. Ferric oxylate
 - E. Potassium oxylate

Competency Level Question

22. The most effective supportive therapy for this patient's tooth mobility is
- A. Fabrication of a night guard
 - B. Biofeedback to reduce parafunctional habits
 - C. Therapeutic massage of tense muscles
 - D. Splinting the teeth for stabilization

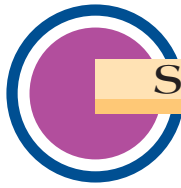
DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

23. To assist with pain control, the dental hygienist who tells the patient she will not instrument the sensitive teeth may violate the ethical principle of
- A. Autonomy
 - B. Beneficence
 - C. Nonmaleficence
 - D. Justice
 - E. Fidelity
24. Which of the following should be established as a priority when developing the dental hygiene care plan for this patient?
- A. Controlling blood pressure
 - B. Reducing tooth sensitivity
 - C. Eliminating nocturnal bruxing
 - D. Providing a new soft toothbrush
 - E. Obtaining vertical bitewing radiographs

Competency Level Question

25. This patient's anxiety may be managed best by
- A. Allowing the patient to stop the instrumentation process at any time
 - B. Introducing relaxation techniques such as deep breathing
 - C. Consulting with the dentist to prescribe an antianxiety premedication
 - D. Providing the patient with headphones to listen to music during treatment
 - E. Correctly and carefully adapting instrumentation



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions have been completed as an example.

Deficit identified in protection from health risks

Due to: loss of consciousness as a result of sudden fall in blood pressure

Evidenced by: history of syncope and low blood pressure

Goals: *to complete dental hygiene appointments without incidence of syncope; to anticipate dental hygiene appointments without anxiety*

Dental hygiene actions/interventions: *record vital signs; document medical alert on patient chart; plan for medical emergency; establish rapport that encourages trust; use listening and communication skills to assist patient with identifying the cause (physical or psychological) and address to help patient gain control*

Deficit identified in freedom from fear and stress

Due to: apprehension regarding pain and embarrassment regarding fainting episodes

Evidenced by: rapid speech, nervous laughter, and overt enthusiasm

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from pain

Due to: teeth sensitivity

Evidenced by: self-report; exposed root surfaces

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: bacterial plaque and trauma from occlusion

Evidenced by: mucogingival involvement

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: decreased salivary production and root exposure

Evidenced by: dental caries and dentinal hypersensitivity

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this patient's exposed root surfaces (P), will casein phosphate-amorphous calcium phosphate complex (such as MI Paste™) (I) as compared with a sodium fluoride varnish (such as Colgate Duraphat® Varnish) (C) decrease sensitivity (O)?



MAKING ETHICAL DECISIONS

At the beginning of the appointment, the patient points out certain teeth that are sensitive to scaling and polishing and tells you that she does not want you to "touch" these teeth.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Describe methods of anxiety control that could be implemented for this patient.
2. Outline a plan of appointments addressing time needed, services planned, specific instruments, equipment necessary, and reevaluation intervals for each appointment.
3. Identify self-care instructions to address the challenges associated with removable partial dentures, dentinal hypersensitivity, mucogingival involvement, and xerostomia.

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CHAPTER 7

CASE E Louis Riddick



SITUATION

Louis Riddick and his wife owned and managed their own business until their sons took over last year. Louis is still very active in his community, and has a close circle of friends with whom he enjoys playing golf. Recently diagnosed with prehypertension, he is attempting to quit smoking. He is here today because his wife made the appointment for him after he mentioned that he thought his teeth might be getting loose.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Classify occlusal relationships.
 - B. Identify deviations in gingival appearance.
 - C. Determine etiology of diastema.
 - D. Apply appropriate terminology to identify white lesions.
2. **Obtain and interpret radiographs.**
 - A. Differentiate between normal radiographic anatomy and pathosis.
 - B. Utilize radiographs as an aid in identifying local contributing factors for periodontal disease.
 - C. Apply radiographic interpretation to determine clinical findings.
3. **Plan and manage dental hygiene care.**
 - A. Individualize treatment planning for the periodontally involved patient.
 - B. Appropriately recommend a self-care product for the periodontally involved patient.
4. **Perform periodontal procedures.**
 - A. Recognize periodontal disease's effect on the dentition.
 - B. Utilize periodontal instruments effectively.
 - C. Describe bone loss patterns associated with periodontal disease.
 - D. Classify furcation involvement according to severity.
 - E. Measure clinical attachment level (CAL).
 - F. Identify the local contributing factor in the presence of a periodontal pocket.
 - G. Identify periodontal disease risk factors.
 - H. Predict outcomes of periodontal disease treatment interventions.
 - I. Recommend appropriate maintenance interval for the periodontally involved patient.
5. **Use preventive agents.**
 - A. Select an appropriate chemotherapeutic agent for patient self-care following non-surgical periodontal therapy.
6. **Provide supportive treatment services.**
 - A. Assist the patient in smoking cessation efforts.
7. **Demonstrate professional responsibility.**
 - A. Identify effective communication that assists the patient in understanding treatment outcomes.
 - B. Use communication that is appropriate for the dental hygiene professional.
 - C. Identify communication that hinders patient motivation and compliance.

ADULT-PERIODONTAL PATIENT—Louis Riddick
PATIENT HISTORY SYNOPSIS

Age 56 years
 Gender male
 Height 5' 3"
 Weight 150 lbs.

VITAL SIGNS

Blood Pressure 139/89 mm Hg
 Pulse Rate 70 bpm
 Respiration 17 rpm

- Under care of physician
 Yes ☒ No ☐ Condition: blood pressure monitoring
smoking cessation
- Hospitalized within the last 5 years
 Yes ☐ No ☒ Reason: _____
- Has or had the following conditions
prehypertension
- Current medications
bupropion hydrochloride (Zyban®)—antidepressant
as aid in smoking cessation
nicotine polacrilex (Nicorette®)—smoking
cessation aid
- Smokes or uses tobacco products
 Yes ☐ No ☒
- Is pregnant
 Yes ☐ No ☐ N/A ☒

MEDICAL HISTORY

Prehypertension diagnosed at a blood pressure screening last month. Obtained a medical exam and was advised to quit smoking. Patient has not had a cigarette in 5 days.

DENTAL HISTORY

Reports that he had several teeth extracted "years ago", but that he gets along just fine without them. In fact, he jokes, "I now have less to brush." His last dental hygiene appointment was 12 months ago. Uses a "smoker's" toothpaste.

SOCIAL HISTORY

Enjoys his relationship with his wife and family. Considers his golf outings as exercise and important to his well-being.

CHIEF COMPLAINT

Patient reports mentioning to his wife that his teeth appeared to be getting loose. At first he dismissed this as a natural part of the aging process, until his wife expressed concern. He is here today to find out the cause.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	456	859	736	735	423	423	323	323	324	434	533	335	566	X	544
Probe 1	X	567	9610	847	846	534	534	434	434	435	545	644	446	677	X	655
F																
P																
Probe 1	X	758	9711	745	446	534	434	434	434	434	335	645	656	757	X	656
Probe 2	X	647	8610	634	335	423	323	323	323	323	224	534	545	646	X	545
R																
Probe 2	444	X	X	434	433	323	322	222	222	222	323	334	434	X	X	555
Probe 1	655	X	X	545	544	424	423	222	223	323	324	435	545	X	X	666
L																
F																
Probe 1	655	X	X	435	534	435	534	323	323	323	324	445	545	X	X	656
Probe 2	544	X	X	324	423	324	423	323	323	323	223	334	434	X	X	545
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

CURRENT ORAL HYGIENE STATUS

Moderate subgingival plaque especially interproximal and generalized bleeding upon probing. Recently began using a power toothbrush.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Slight tongue thrust. Generalized Class I mobility. Slight generalized calculus.

Clinically visible carious lesion

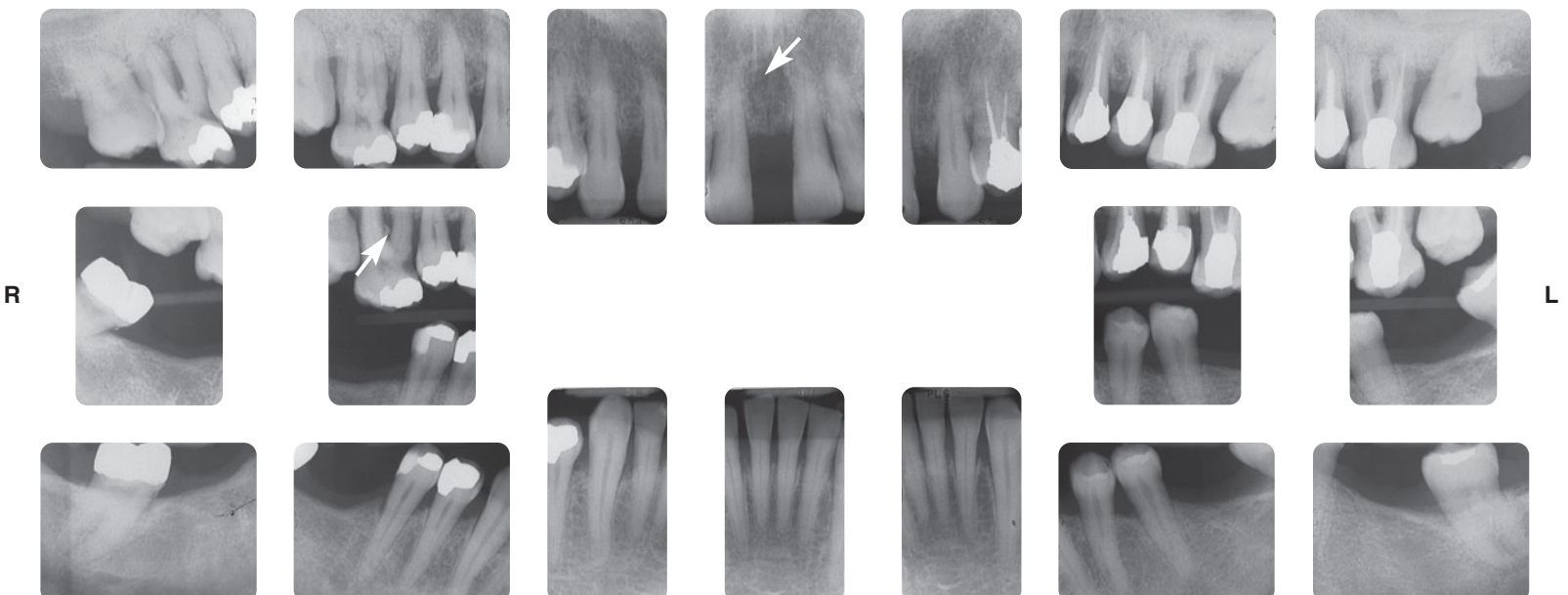
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Left side



Right side



Right side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following is the best assessment of this patient's anterior occlusal relationship?
 - A. Crossbite
 - B. Edge-to-edge
 - C. Open bite
 - D. Overjet
 - E. Underjet
2. The dark appearance of the facial gingiva most likely indicates
 - A. Melanin pigmentation
 - B. Smoking stains
 - C. Lichen planus
 - D. Contact stomatitis
 - E. Discoid lupus erythematosus

Competency Level Questions

3. Which of the following is the most likely cause of this patient's maxillary central diastema?
 - A. Tongue thrust
 - B. Enlarged incisive papilla
 - C. Periodontal involvement
 - D. Developing radicular cyst
 - E. Location of the frenal attachment
4. Which of the following is the most likely assessment of the white patch present on the soft tissue located near the maxillary central incisors that does not wipe off with gauze?
 - A. Leukodema
 - B. Leukoplakia
 - C. Candidiasis
 - D. Nicotinic stomatitis
 - E. Fordyce's granules

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Question

5. Which of the following is the most likely interpretation of the oval radiolucency between the maxillary central incisors (arrow)?
 - A. Mental foramen
 - B. Mandibular foramen
 - C. Incisive foramen
 - D. Lingual foramen
 - E. Infraorbital foramen

Competency Level Questions

6. Which of the following is the most likely interpretation of the radiopaque finding between the roots of the maxillary right first molar (arrow)?
 - A. Calculus
 - B. Pulp stone
 - C. Enamel pearl
 - D. Hypercementosis
 - E. Composite restoration

7. The gray hue exhibited by the maxillary left first premolar is
 - A. An indication that this tooth is not vital
 - B. The result of tetracycline staining
 - C. A condition of dentinogenesis imperfecta
 - D. Caused by the presence of metallic restorative materials
 - E. Hypocalcified enamel

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Question

8. Which of the following would most likely be planned for this patient's first appointment?
 - A. Application of desensitizing agents
 - B. Instruction in oral self-care
 - C. Extraction of the maxillary first molars
 - D. Full-mouth periodontal scaling and root debridement
 - E. Antifungal treatment of the white patches

Competency Level Question

9. Which of the following would be the most beneficial oral self-care education for this patient?
 - A. Recommend modified Bass toothbrushing.
 - B. Suggest using the dental floss holder.
 - C. Introduce the end-tuft brush.
 - D. Provide a brochure on the interdental brush.
 - E. Review patient skill with the power toothbrush.

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

10. What factors contributed to the super eruption of the maxillary first molars?
 - A. Furcation involvement
 - B. Long junctional epithelium
 - C. Absence of mandibular first molars
 - D. Surgical intervention for periodontal disease
 - E. Inadequate attached gingiva
11. The purpose of the instrument shown in the photograph of the maxillary right first molar is to
 - A. Measure furcation involvement.
 - B. Scale posterior teeth.
 - C. Explore for calculus.
 - D. Record pocket depths.
 - E. Apply subgingival irrigation.
12. Which of the following best describes the type of bone loss associated with the maxillary right first and second premolars?
 - A. Angular
 - B. Vertical
 - C. Dehiscence
 - D. Fenestration
 - E. Horizontal
13. Which of the following is the correct classification of furcation involving the maxillary right first molar?
 - A. Grade I
 - B. Grade II
 - C. Grade III
 - D. Grade IV

Competency Level Questions

14. For each of the regions listed, select the hand-activated instrument that would be the best choice for effective and efficient debridement when treating this patient. (Answers may be used only once.)

For effective and efficient debridement of this region	Use this hand-activated instrument
____ 1. Mesial surface of the mandibular right second molar	A. Gracey 1/2 curet—standard
____ 2. Lingual surface of the mandibular left second molar	B. Gracey 9/10 curet—standard
____ 3. Mesial surface of the maxillary right central incisor	C. Gracey 11/12 curet—extended shank
____ 4. Distal surface of the maxillary right second molar	D. Gracey 13/14 curet—micro mini
____ 5. Distal surface of the mesial root of the maxillary right first molar	E. Gracey 17/18 curet—rigid shank

15. Using the furcation probe calibrated marking as a guide (pictured), the recession on the facial surface of the maxillary right first molar appears to be 4 mm. What is the measurement of the clinical attachment level at the reevaluation appointment?
- 10 mm
 - 9 mm
 - 8 mm
 - 6 mm
 - 5 mm
16. Which of the following may be a contributing etiologic factor to the periodontal defect present on the mesial surface of the maxillary left first premolar?
- Endodontic therapy
 - Overhanging restoration
 - Tooth root morphology
 - Incipient carious lesion
 - Occlusal trauma
17. Which of the following is the most likely cause of this patient's tooth mobility?
- Periodontal disease
 - Untreated high blood pressure
 - Tongue thrust habit
 - Loss of permanent teeth
 - Chewing of Nicorette® gum
18. Which of the following has been the greatest risk factor for this patient's periodontal disease?
- Brushing habits
 - Medications
 - Stress
 - Prehypertension
 - Smoking
19. Each of the following is a likely reason for the generalized reduction in pocket depths at the reevaluation appointment EXCEPT one. Which one is the EXCEPTION?
- Tissue shrinkage with a return to normal color, size, and contour
 - Improved integrity of the clinical attachment
 - Formation of a long junctional epithelial attachment
 - Regeneration of new bone, cementum, and periodontal ligament
 - Reformation of collagen that resists probing

20. Based on the oral conditions and patient self-care knowledge and effectiveness assessed at the initial appointment, and on the probing depths at the reevaluation appointment, when should this patient's next periodontal maintenance appointment be scheduled?
 - A. 1 month
 - B. 3 months
 - C. 4 months
 - D. 6 months
 - E. 12 months

USING PREVENTIVE AGENTS

Competency Level Question

21. Which of the following chemotherapeutic rinses would be the best recommendation for this patient to use following his initial appointment until he returns for the six-week reevaluation appointment?
 - A. Essential oils (Listerine®)
 - B. Zinc chloride (Breathe Rx®)
 - C. Cetylpyridinium chloride (Crest Pro Health®)
 - D. Chlorhexidine gluconate (Peridex®)
 - E. Hydrogen peroxide (Prevention Mouth Rinse®)

PROVIDING SUPPORTIVE TREATMENT SERVICES

Competency Level Question

22. Which of the following should be included in this patient's smoking cessation follow-through from the dental hygienist?
 - A. Instruct him to chew nicotine gum as one would conventional chewing gum.
 - B. Provide positive reinforcement, emphasizing the benefits of stopping smoking.
 - C. Warn the patient that a single slip, smoking one cigarette, will make him a user again.
 - D. Inform the patient that nicotine withdrawal symptoms will subside in five to seven days.
 - E. Use photos of failed periodontal therapy as a scare tactic.

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

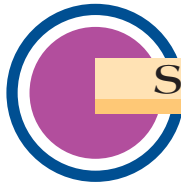
Basic Level Question

23. The dental hygienist is obligated to explain each of the following possible negative outcomes of periodontal therapy treatment to this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Appearance of long teeth
 - B. Increased dentinal sensitivity
 - C. Increased tooth mobility
 - D. Statistics on success rates of treatment
 - E. Blunting of papillae

Competency Level Questions

24. Which of the following statements is appropriate and legally within the scope of practice for a dental hygienist to make regarding this patient?
 - A. "Following nonsurgical periodontal therapy the mobility should improve."
 - B. "Both maxillary first molars should be extracted."
 - C. "You will need a referral to be evaluated by a periodontist."
 - D. "Your physician should have prescribed a blood pressure medication."
 - E. "Implants can be used to replace your missing teeth."

25. Which of the following is the best initial response to this patient's comments reported in his dental history?
- "Although you may not realize it, you have the ability to achieve good dental health."
 - "Why did you wait so long to come in for dental treatment?"
 - "We are going to set you up with four appointments for deep scaling."
 - "If you don't begin to take care of your teeth you will most likely be losing some more."
 - "Great! Next you'll be telling us that we should charge you less because you have less teeth to clean. Just kidding."



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: smoking history

Evidenced by: self-report

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: significant pocket depths

Evidenced by: the presence of gingival inflammation and bleeding

Goals: *maintain pocket depth reduction noted at reevaluation appointment; reduce pocket depths that remain unchanged*

Dental hygiene actions/interventions: *evaluate outcomes of periodontal debridement; assess patient understanding of the disease process and commitment to goals; determine the need for scaling residual calculus and reinstrumenting regions of unchanged pocket depths; perform periodontal debridement; refer to periodontist*

Deficit identified in biologically sound and functional dentition

Due to: potential for tooth loss

Evidenced by: tooth mobility

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: misconceptions associated with oral health care

Evidenced by: lack of replacement of missing teeth

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: lack of regular oral care; neglecting the signs and symptoms of periodontal disease

Evidenced by: periodontal disease and caries; lack of awareness of the patient's role in his own oral health

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this patient (P), will a nicotine lozenge (such as Nicorette Lozenge) (I) as compared with a nicotine nasal spray (such as Nicorette Nasal Spray GSL 10ML) (C) increase success of smoking cessation (O)?



MAKING ETHICAL DECISIONS

After the initial treatment, the patient calls the office to complain that you made his oral condition worse. He states that several more teeth have become mobile and that all of his teeth are now very sensitive to cold. He says he will make an appointment to see the dentist, but he does not want you to treat him again.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Investigate tips and techniques to alleviate nicotine withdrawal symptoms that can be shared with this patient.
2. Role-play a script between the dental hygienist and a patient who (1) is not interested in quitting smoking; (2) thinks that switching from smoking cigarettes to using spit tobacco is a safe alternative; and (3) is interested in quitting, but does not know how to begin.
3. Initiate a smoking cessation program (such as the National Cancer Institute and the Agency for Healthcare Research and Quality strategy the Five A's approach—ask, advise, assess, assist, and arrange to smoking cessation) with one of your patients who uses tobacco.

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CHAPTER 8

CASE F *Banu Radpur-Ansari*



SITUATION

Banu Radpur-Ansari is currently working as a graduate teaching assistant in the engineering department at the local university and completing her PhD in statistics and engineering. Dedication to her research and teaching responsibilities have left her little time for activities outside university life. Intelligent and motivated by her current oral conditions and the problems they pose, she is here today to make a commitment to improving her oral health.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Recognize normal anatomic features of the hard palate.
 - B. Identify occlusal disharmonies.
 - C. Determine the cause of food impaction.
2. **Obtain and interpret radiographs.**
 - A. Identify the presence of dental materials radiographically.
 - B. Interpret suspected caries radiographically.
 - C. Recognize situations that require alteration of radiographic techniques.
 - D. Recognize the appearance of normal radiographic anatomy.
3. **Plan and manage dental hygiene care.**
 - A. Determine the need for antibiotic premedication.
 - B. Identify the prophylactic regimen for antibiotic premedication.
 - C. Plan scaling and root planing sequence for the premedicated patient.
 - D. Choose appropriate pain control methods.
4. **Perform periodontal procedures.**
 - A. Identify risk factors for periodontal disease.
 - B. Classify periodontal disease status.
 - C. Identify mucogingival involvement.
 - D. Assess treatment outcomes.
 - E. Recognize the impact periodontal disease has on the patient's ability to maintain oral self-care.
 - F. Determine the etiology of gingival swelling.
5. **Use preventive agents.**
 - A. Recognize contraindications for the use of preventive agents.
 - B. Identify the role antibiotic therapy plays in treating periodontal diseases.
6. **Provide supportive treatment services.**
 - A. Make appropriate referrals in treating periodontal diseases.
 - B. Recognize contraindications for the use of whitening products.
7. **Demonstrate professional responsibility.**
 - A. Identify requirements for informed consent.
 - B. Identify potential causes of patient dissatisfaction with treatment outcomes.

ADULT-PERIODONTAL PATIENT—Banu Radpur-Ansari
PATIENT HISTORY SYNOPSIS

Age 35 years
 Gender female
 Height 5' 8"
 Weight 125 lbs.

VITAL SIGNS

Blood Pressure 114/62 mm Hg
 Pulse Rate 72 bpm
 Respiration 18 rpm

- Under care of physician
 Yes ☒ No ☐ Condition: hypothyroidism
(myxedema)
- Hospitalized within the last 5 years
 Yes ☒ No ☐ Reason: infective endocarditis
- Has or had the following conditions
Currently taking medication for a sinus infection
- Current medications
levothyroxine (Synthroid®)—thyroid product
vitamin D (Drisdol®)—vitamin supplement
amoxicillin (Amoxil®)—antibiotic
- Smokes or uses tobacco products
 Yes ☐ No ☒
- Is pregnant
 Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

A serious urinary tract infection last year resulted in hospitalization for infective endocarditis.

DENTAL HISTORY

Half-mouth scaling and root planing completed approximately 1 year ago. Patient had to cancel her next appointment due to her medical conditions, and then her busy schedule interfered with rescheduling until today. Currently using over-the-counter tooth whiteners and whitening toothpaste.

SOCIAL HISTORY

Moved to the United States from Tehran 10 years ago. Married to a fellow university researcher and reports that there is a lot of stress associated with her pursuit of doctoral research.

CHIEF COMPLAINT

Throbbing pain and bad taste coming from the maxillary left posterior region. She notes that these same symptoms preceded the extraction of the maxillary right second and third molars. She is worried that now the maxillary left teeth will have to be extracted. Interested in professional tooth whitening.

CURRENT ORAL HYGIENE STATUS

General moderate bleeding on probing. Brushes up and down 2 to 3 times per day. Uses a plastic toothpick product (Brush Picks®) after eating to remove food particles that get stuck in the embrasures of the posterior teeth.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	X	346	753	212	212	212	212	212	212	212	222	224	567	758	1075
Probe 1	X	X	345	643	323	313	323	323	323	323	223	323	335	556	758	1086
F																
P																
Probe 1	X	X	346	533	323	212	222	222	222	222	323	323	424	435	637	846
Probe 2	X	X	336	523	313	212	212	212	212	212	212	313	313	426	638	945
R																
Probe 2	434	423	323	312	212	213	312	212	325	523	213	213	323	333	444	434
Probe 1	545	534	434	433	333	324	423	323	325	523	324	324	434	434	554	445
L																
F																
Probe 1	423	414	414	323	313	214	423	322	224	423	322	223	223	346	655	525
Probe 2	423	313	313	312	212	213	312	217	223	423	322	212	213	335	544	424
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Exudate upon probing the maxillary left second and third molars. Class I mobility: maxillary right first molar, maxillary left second molar, and mandibular left second and third molars. Class II mobility: maxillary left third molar. Food impaction between the mandibular right first and second molars. Heavy subgingival calculus in all 4 posterior quadrants and mandibular anterior region.

Clinically visible carious lesion

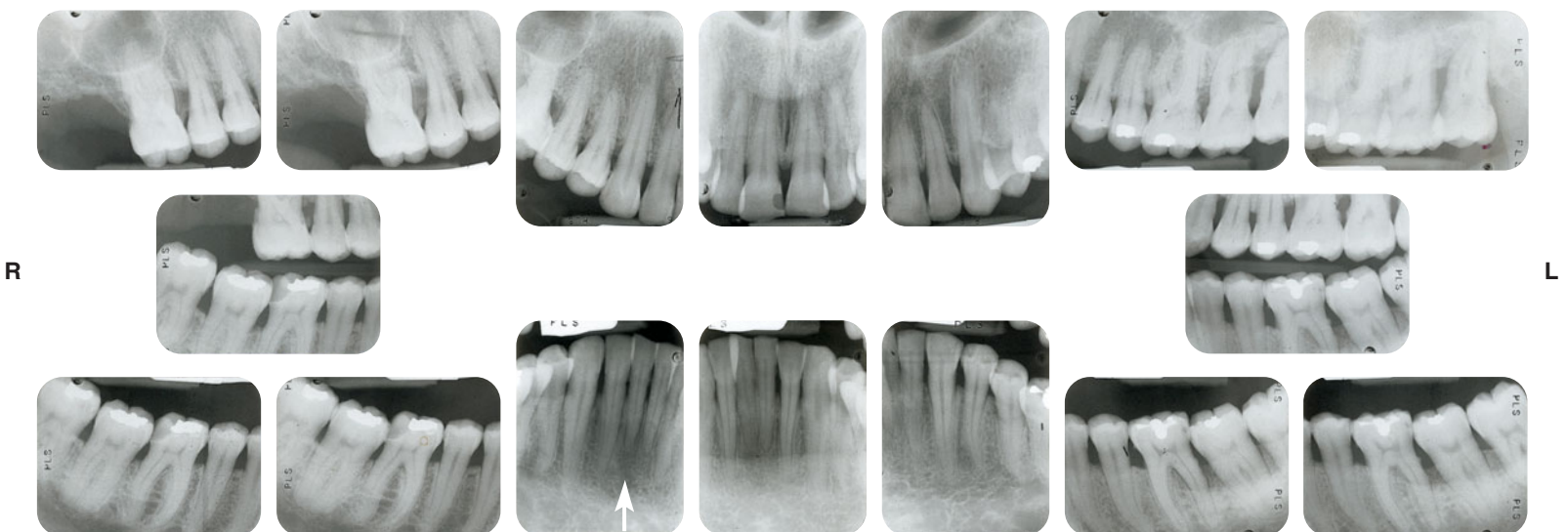
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. The pronounced, raised ridges evident on the anterior region of the hard palate is indicative of
 - A. Torus palatinus
 - B. Rugae
 - C. Salivary duct openings
 - D. Blisterform lesions
 - E. Trauma
2. The appearance of the maxillary anterior teeth indicates
 - A. Erosion
 - B. Abrasion
 - C. Attrition
 - D. Caries
 - E. Abfraction

Competency Level Questions

3. What is the potential risk associated with the mandibular right second and third molars?
 - A. Extrusion
 - B. Ankylosis
 - C. Impaction
 - D. Dilaceration
 - E. Fusion
4. What is the most likely reason for food impaction between the mandibular right first and second molars?
 - A. Mobility
 - B. Blunted papilla
 - C. Recession
 - D. Caries
 - E. Diastema

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

5. Which of the following teeth has been restored with a composite restoration?
 - A. Maxillary right first molar
 - B. Maxillary right central incisor
 - C. Mandibular left first molar
 - D. Mandibular left lateral incisor
 - E. Mandibular right first molar
6. Caries is evident radiographically on which of the following teeth?
 - A. Maxillary right central incisor
 - B. Maxillary left second molar
 - C. Mandibular left first molar
 - D. Mandibular right canine
 - E. Mandibular right second molar

Competency Level Questions

7. What radiographic technique was used to image the maxillary left third molar?
 - A. Water's
 - B. Posterior-anterior
 - C. Occlusal
 - D. Localization
 - E. Disto-oblique
8. The most likely interpretation of the radiolucency at the apices of the mandibular anterior teeth (arrow) is
 - A. The lingual foramen
 - B. The mental fossa
 - C. Periapical cemental dysplasia
 - D. Signs of osteoporosis
 - E. A periapical abscess

PLANNING AND MANAGING DENTAL HYGIENE CARE*Basic Level Questions*

9. What is the reason that this patient must be premedicated before periodontal probing and subgingival debridement procedures?
 - A. History of infective endocarditis
 - B. Thyroid condition
 - C. Sinus infection
 - D. Foreign born
 - E. Blood pressure
10. What is the recommended antibiotic premedication for this patient?
 - A. 2 g amoxicillin orally 1 hour before treatment
 - B. 2 g ampicillin IM 30 minutes before treatment
 - C. 600 mg clindamycin orally 1 hour before treatment
 - D. 1 g cefazolin IV 30 minutes before treatment

Competency Level Questions

11. Following prophylactic antibiotic premedication, order the most appropriate treatment plan for this patient. Match each letter with its proper sequence number.

Begin with the first appointment.		
1. ____		A. Extract teeth with poor prognosis.
2. ____		B. Anesthetize and scale and root plane the maxillary second and third molars.
3. ____		C. Scale and root plane one-half of mouth, followed by scaling and root planing of other half of mouth in two weeks.
4. ____		D. Evaluate response to nonsurgical therapy.
5. ____		E. Schedule maintenance appointments.
6. ____		F. Restore caries.
7. ____		G. Evaluate and determine need for referral to periodontist.
8. ____		H. Provide self-care instructions.

12. Which of the following pain control choices is required for debridement of the maxillary left quadrant?
 - A. Nitrous oxide–oxygen analgesia
 - B. Topical anesthetic benzocaine 20%
 - C. Infiltration anesthesia prilocaine 4%
 - D. Noninjectable anesthetic lidocaine 2.5% and prilocaine 2.5% gel
 - E. Block anesthesia bupivacaine 0.5% with epinephrine

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

13. Which of the following is a risk factor for this patient's periodontal disease?
 - A. Endocrine
 - B. Stress
 - C. Hormones
 - D. Age
 - E. Race
14. What is the American Academy of Periodontology's classification of this patient's periodontal status?
 - A. Chronic periodontitis
 - B. Aggressive periodontitis
 - C. Drug-induced gingival disease
 - D. Periodontitis as a manifestation of systemic diseases
 - E. Necrotizing periodontitis
15. Each of the following teeth appears to be at risk for mucogingival involvement EXCEPT one. Which one is the EXCEPTION?
 - A. Maxillary left canine
 - B. Maxillary left second molar
 - C. Mandibular left central incisor
 - D. Mandibular right canine
 - E. Mandibular right second molar
16. At the reevaluation appointment, which of the following areas should be retreated and monitored closely for signs of further attachment loss?
 - A. All four posterior quadrants
 - B. Entire mandibular arch
 - C. Maxillary right and left posterior regions
 - D. Maxillary and mandibular anterior sextants
 - E. Maxillary right posterior, maxillary left posterior, mandibular left central, and lateral incisor regions

Competency Level Questions

17. Which of the following is the most likely reason that this patient has chosen to use plastic picks to remove food from between her teeth?
 - A. Too busy to floss
 - B. Furcation involvement
 - C. Gingival recession
 - D. Blunted papillae
 - E. Cultural influence

18. The extended and enlarged bulbous area located on the attached gingiva apical to the maxillary left second and third molars (arrow) is most likely the result of
 - A. A periodontal abscess
 - B. Trauma from plastic picks
 - C. Bone exostosis
 - D. Occlusal disharmonies
 - E. An impacted tooth
19. Based on probe readings at the reevaluation appointment, which of the following is the most accurate assessment of this patient's periodontal condition?
 - A. Classified as recurrent periodontal disease and should reenter initial nonsurgical therapy
 - B. Considered refractory periodontal disease and should reenter initial nonsurgical therapy
 - C. Determined to be a potential candidate for periodontal surgery and should be referred to a periodontist
 - D. Categorized as necrotizing ulcerative periodontitis and should be referred to a periodontist
 - E. Suspected drug-influenced gingival enlargement and should be referred to a physician

USING PREVENTIVE AGENTS

Basic Level Question

20. Which of the following would require contacting this patient's physician before recommending for at-home use?
 - A. Rinsing with essential oils
 - B. Irrigating orally with chlorhexidine gluconate
 - C. Brushing with sodium fluoride
 - D. Applying a whitening product
 - E. Using disclosing tablets

Competency Level Question

21. Each of the following is a reason that the antibiotic this patient is currently taking for her sinus infection has failed to improve her periodontal abscess and generalized periodontal condition EXCEPT one. Which one is the EXCEPTION?
 - A. Too low a concentration reaching the oral site
 - B. Unfavorable local risk factors present
 - C. Microorganisms not susceptible to the antibiotic
 - D. Inadequate or incorrect dose
 - E. Patient noncompliance

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

22. If painful symptoms do not subside after vigorous subgingival debridement of the maxillary left molar region, when should the patient be referred for emergency periodontal surgery to access the furcation area?
 - A. Immediately following the scaling appointment
 - B. When the anesthesia wears off
 - C. After 24 hours
 - D. Within one to two weeks
 - E. At the next reevaluation appointment

Competency Level Question

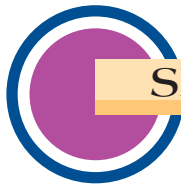
23. Each of the following is a potential contraindication of professional tooth whitening for this patient EXCEPT one. Which one is the EXCEPTION?
- A. Active pathological condition
 - B. Periodontal status
 - C. Anterior composite restoration
 - D. Age
 - E. Current shade of her teeth

DEMONSTRATING PROFESSIONAL RESPONSIBILITY*Basic Level Question*

24. Prior to proceeding with the dental hygiene care plan, this patient's signature must be obtained to
- A. Verify her vital signs.
 - B. Give consent to treatment.
 - C. Show legal status in the United States.
 - D. Validate her commitment to self-care.
 - E. Document when her last dental appointment was.

Competency Level Question

25. This patient is unlikely to be satisfied with results obtained by in-office bleaching because it is likely that
- A. She has unrealistic expectations of the outcome.
 - B. Tooth sensitivity will result.
 - C. The composite restoration will no longer match her natural teeth shade.
 - D. She will have an allergic reaction to the bleaching products.
 - E. Soft tissue sensitivity will develop.

**SETTING PATIENT GOALS****ESTABLISHING A DENTAL HYGIENE CARE PLAN**

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: potential to develop infective endocarditis

Evidenced by: self-reported past infective endocarditis

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from pain**Due to:** periodontal abscess**Evidenced by:** periodontal disease; lack of plaque control**Goals:** *patient will seek regular professional care; periodontal disease will be brought under control***Dental hygiene actions/interventions:** *educate patient on disease process; plan number and length of appointments; discuss treatment plan and potential outcomes with patient; initiate nonsurgical periodontal treatment; make appropriate referral recommendations***Deficit identified in wholesome facial image****Due to:** unrealistic expectations regarding tooth whitening**Evidenced by:** request for professional whitening products**Goals:** _____**Dental hygiene actions/interventions:** _____**Deficit identified in skin and mucous membrane integrity of the head and neck****Due to:** bacterial plaque accumulation**Evidenced by:** attachment loss and mucogingival involvement**Goals:** _____**Dental hygiene actions/interventions:** _____

ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

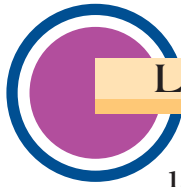
For this patient (P), will The Doctor's® Brush Picks® (I) as compared with Rotadent® Rota-Point™ interdental cleaners (C) meets her needs while maintaining gingival integrity and promoting gingival health (O)?



MAKING ETHICAL DECISIONS

This patient questions you about the possibility that calculus left after her “deep scaling” last year may have caused the pain and exudate related to the maxillary left second and third molars. She is concerned that the dental hygienist she saw at that time was negligent.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. To assist with answering patient questions regarding what whitening products to use, investigate a number of different whitening products currently marketed to the public. Use magazine or television ads, the Web, or products promoted by oral health care facilities in your area to make a list of at least five different products. Determine the active ingredients, instructions for use, cost, manufacturer’s claims on efficacy, and availability of supportive research on efficacy. Then list advantages and disadvantages of the various products.
2. Divide the class into two sides for a philosophical debate on tooth whitening’s role in the oral health care practice. One team should prepare for the debate by taking the side that whitening procedures are cosmetic and should not play a serious role in treatment planning for the patient. The other side should champion whitening services as an integral component of total oral health care.

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CHAPTER 9

CASE **G** *Juan Hernandez*



SITUATION

Juan Hernandez looks forward to coming to his regularly scheduled six-month dental hygiene appointments. He is usually accompanied by his adult granddaughter, whom he depends on for transportation. This patient is ambulatory, with the use of a cane.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Recognize etiology of deviations in gingival appearance.
 - B. Distinguish normal anatomic features from pathology.
 - C. Assess occlusal relationships.
 - D. Identify conditions that result in the need for Class V restorations.
 - E. Determine the etiology of gingival recession.
 - F. Identify the interrelationship of arthritis and oral function.
2. **Obtain and interpret radiographs.**
 - A. Recognize dental materials radiographically.
 - B. Apply appropriate techniques to correct radiographic errors.
 - C. Appropriately recommend the use of vertical or horizontal bitewing radiographs.
 - D. Differentiate between normal radiographic anatomy and pathology.
3. **Plan and manage dental hygiene care.**
 - A. Identify possible effects of prescribed medications on dental hygiene treatment.
 - B. Identify health risks that contraindicate dental hygiene treatment.
 - C. Modify dental hygiene treatment when necessary for the medically compromised patient.
 - D. Plan periodontal debridement sequence based on patient needs.
4. **Perform periodontal procedures.**
 - A. Assess periodontal status.
 - B. Identify oral conditions that hinder instrumentation.
 - C. Provide appropriate follow-up care for the periodontally involved patient.
 - D. Recommend periodontal maintenance schedule based on tissue response to nonsurgical periodontal treatment.
5. **Use preventive agents.**
 - A. Determine the need for appropriate supplemental oral hygiene devices and agents.
6. **Provide supportive treatment services.**
 - A. Recognize the appropriate method for margination of an overhang amalgam.
 - B. Select appropriate treatment for temporomandibular disorder (TMD).
7. **Demonstrate professional responsibility.**
 - A. Demonstrate effective communication techniques with the stroke survivor.
 - B. Determine the components of implied consent.
 - C. Determine the components of informed consent.

GERIATRIC PATIENT—Juan Hernandez
PATIENT HISTORY SYNOPSIS

Age 81 years
 Gender male
 Height 5' 10"
 Weight 175 lbs.

VITAL SIGNS

Blood Pressure 140/90 mm Hg
 Pulse Rate 70 bpm
 Respiration 14 rpm

1. Under care of physician

Yes

No

Condition: hypertension

2. Hospitalized within the last 5 years

Yes

No

Reason: cerebrovascular
accident (CVA)

3. Has or had the following conditions

atherosclerosisosteoarthritis

4. Current medications

warfarin (Coumadin®)—anticoagulantchlorothiazide (Diuril®)—diureticatorvastatin (Lipitor®)—antihyperlipidemicnaproxen (Naprosyn®)—anti-inflammatory/antiarthritic

5. Smokes or uses tobacco products

Yes

No



6. Is pregnant

Yes

No



N/A

**MEDICAL HISTORY**

Has slightly impaired use of his right side since stroke, 5 years ago. Experiences morning stiffness especially in hands, hips, and knees.

DENTAL HISTORY

Proud that he has all of his teeth and has not had to experience dentures. Attributes his oral condition to "the goodness of faith" and the good food of his culture. Patient does not know if his toothpaste contains fluoride.

SOCIAL HISTORY

Lives with the youngest of his six children. His extended family is close and he enjoys being the family patriarch. His wife of 58 years is deceased.

CHIEF COMPLAINT

Temporomandibular joint has become somewhat problematic with an increased stiffness and a crackling sensation that has manifested bilaterally.

CURRENT ORAL HYGIENE STATUS

Brushes once per day using a horizontal scrubbing action and has had instruction in flossing, but his arthritic hands have not "had much luck" using floss. Bleeding upon probing interproximally in posterior regions. Slight generalized calculus. Moderate generalized marginal plaque.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	324	425	534	212	212	212	212	212	212	315	434	334	424	434	X
Probe 1	X	324	425	534	212	312	212	212	212	212	315	434	334	434	434	X
F																
P																
Probe 1	X	466	435	523	323	313	212	212	212	212	214	414	424	523	465	X
Probe 2	X	466	435	523	322	212	212	212	212	212	213	314	424	523	444	X
R																
Probe 2	X	525	525	524	414	212	212	212	212	212	214	415	424	424	525	X
Probe 1	X	525	525	524	414	333	322	212	212	212	214	415	525	525	525	X
L																
F																
Probe 1	X	425	526	524	412	212	212	212	212	212	212	214	412	424	433	X
Probe 2	X	424	526	524	412	212	212	212	212	212	212	214	312	324	423	X
		32	31	30	29	28	27	26	25	24	23	22	21	20	19	18

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Moderate xerostomia. TMJ moderate crepitus bilaterally. Mandibular left premolars exhibit fremitus.

 Clinically visible carious lesion

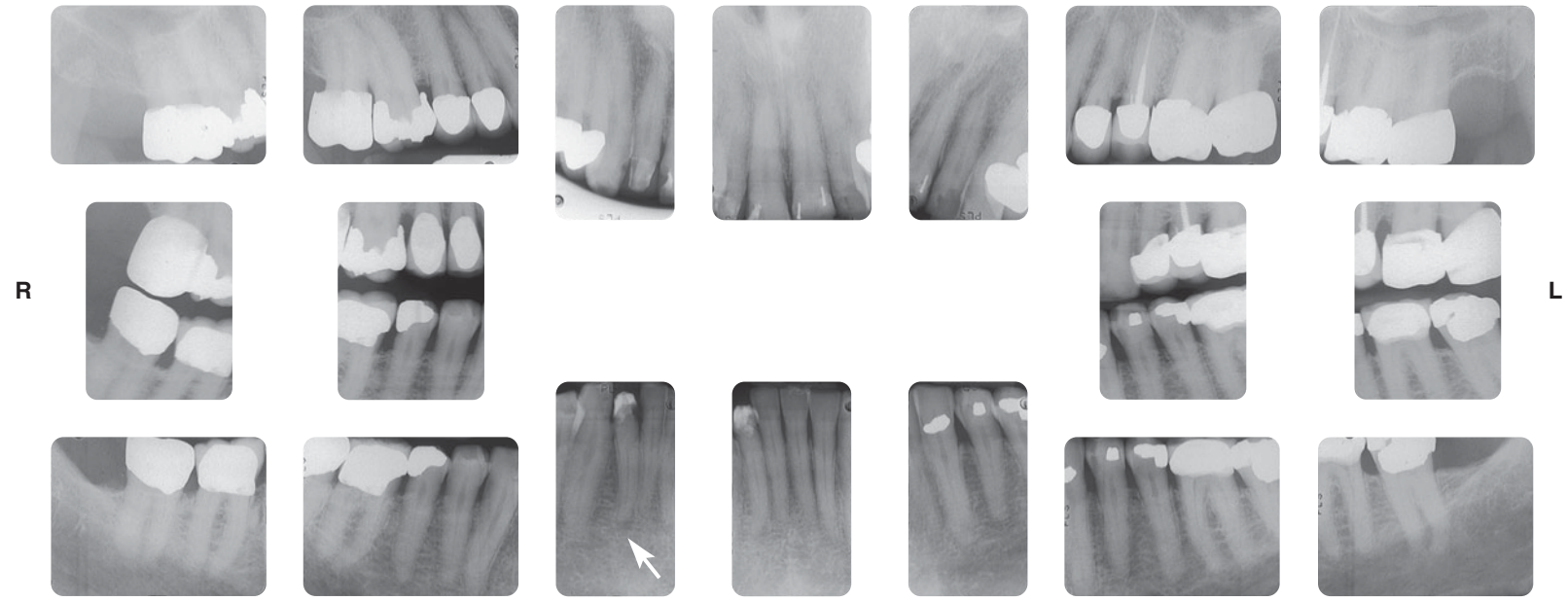
 Clinically missing tooth

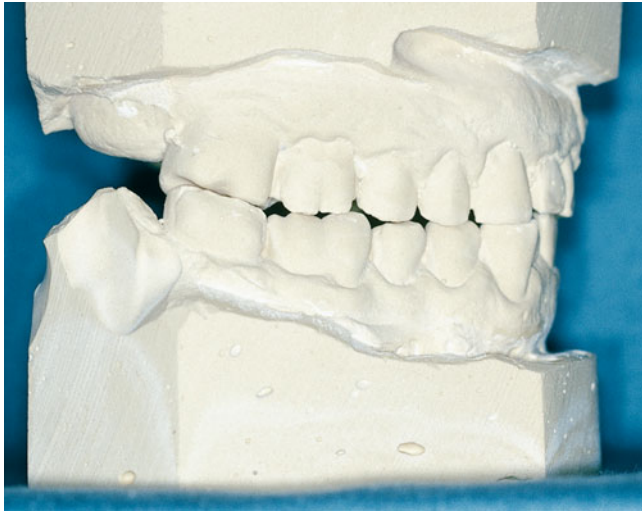
 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following best describes the bluish gingival tissue lingual to the maxillary right first molar?
 - A. Necrosis
 - B. Cyanosis
 - C. Leukoplakia
 - D. Exostosis
 - E. Amalgam tattoo
2. Which of the following is the most likely assessment of this patient's palate?
 - A. Granular tumor
 - B. Pseudocyst
 - C. Gingival fibromatosis
 - D. Torus palatinus
 - E. Hyperplastic salivary ducts
3. Which of the following correctly describes this patient's molar occlusal relationship on the right side?
 - A. Open bite
 - B. Edge-to-edge
 - C. End-to-end
 - D. Crossbite
 - E. Protruded

Competency Level Questions

4. Each of the following may have contributed to the need for the Class V restorations placed on the mandibular left canine, first premolar, and second premolar EXCEPT one. Which one is the EXCEPTION?
 - A. Cervical burnout
 - B. Toothbrush abrasion
 - C. Aggressive scaling
 - D. Root caries
 - E. Abfraction
5. Age and occlusal trauma are the cause of this patient's gingival recession.
This patient's gingival recession has increased his risk of root caries.
 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.
6. Which of the following is the most likely contributing factor in this patient's temporomandibular joint disorder (TMD)?
 - A. History of a stroke
 - B. High blood pressure
 - C. Osteoarthritis
 - D. Age
 - E. Attrition

OBTAINING AND INTERPRETING RADIOGRAPHS*Basic Level Questions*

7. Radiographically, the maxillary left second premolar shows signs of
 - A. Endodontic therapy
 - B. Endosseous implant
 - C. Internal root resorption
 - D. Pulp stones
 - E. Apicoectomy
8. For each tooth, select the dental material present. (Answers may be used only once.)

Tooth	Dental material
___ 1. Maxillary right second molar	A. Amalgam
___ 2. Maxillary right first molar	B. Porcelain crown
___ 3. Maxillary right second premolar	C. Porcelain fused-to-metal crown
___ 4. Maxillary right lateral incisor	D. Full metal crown
___ 5. Maxillary right central incisor	E. Composite
___ 6. Maxillary left central incisor	F. Retention pins

Competency Level Questions

9. Which one of the following would correct the technique error evidenced in the maxillary right canine periapical radiograph?
 - A. Move the image receptor posteriorly.
 - B. Move the image receptor anteriorly.
 - C. Decrease the vertical angulation.
 - D. Increase the vertical angulation.
 - E. Move the PID inferiorly.
10. Which of the following is the best reason for exposing vertical and not horizontal bite-wing radiographs on this patient?
 - A. Age
 - B. Periodontal status
 - C. Presence of maxillary torus
 - D. Limited opening because of TMD
 - E. To eliminate the need for periapical radiographs
11. Which of the following is the most likely interpretation of the radiolucency observed near the mandibular right lateral incisor (arrow)?
 - A. Genial tubercles
 - B. Mental foramen
 - C. Periapical abscess
 - D. Film identification dot
 - E. Mandibular torus

PLANNING AND MANAGING DENTAL HYGIENE CARE*Basic Level Questions*

12. Which medication currently taken by this patient may contraindicate proceeding with treatment today?
 - A. Diuril
 - B. Lipitor
 - C. Naprosyn
 - D. Coumadin

13. Each of the following is important when planning oral health care appointments for this patient EXCEPT one. Which one is the EXCEPTION?
- Schedule treatment for early morning.
 - Allow frequent position changes during treatment.
 - Make sure treatment chair is comfortable.
 - Provide physical supports such as pillows.
 - Plan short treatment segments.

Competency Level Questions

14. Given that this patient has an acceptable prothrombin time and treatment may continue, which of the following would still be contraindicated?
- Subgingival instrumentation with hand instruments
 - Air-powder polishing with sodium bicarbonate
 - Ultrasonic instrumentation with narrow profile tip
 - Nitrous oxide sedation
 - Sodium fluoride varnish application
15. Which of the following would be the most appropriate treatment plan for this patient?
- One appointment for full-mouth oral prophylaxis, followed up with a six-month recall appointment
 - One appointment for full-mouth nonsurgical periodontal therapy, followed up with a six-week reevaluation appointment
 - One appointment for full-mouth disinfection, followed up with a four-week reevaluation appointment
 - Two appointments for half-mouth periodontal debridement, followed up with a six-week reevaluation appointment
 - Four appointments for quadrant scaling and root planing, followed up with a four-week reevaluation appointment

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

16. What is this patient's periodontal status?
- Aggressive periodontitis
 - Slight chronic periodontitis
 - Moderate chronic periodontitis
 - Severe chronic periodontitis
 - Refractory periodontitis
17. Each of the following may hinder periodontal debridement procedures for this patient EXCEPT one. Which one is the EXCEPTION?
- Furcation involvement
 - Poorly contoured crown margins
 - Cervical restorations
 - Increased bleeding
 - Cultural attitude toward treatment

Competency Level Questions

18. Based on this patient's probing depths at the reevaluation appointment, each of the following would be indicated EXCEPT one. Which one is the EXCEPTION?
- Prescribing oral antibiotic therapy
 - Referring to a periodontist
 - Instrumenting pockets and bleeding areas
 - Irrigating orally with chemotherapeutic agents
 - Using locally delivered drug therapy

19. Based on the probe readings at the reevaluation appointment, when should this patient's next periodontal maintenance appointment be scheduled?
 - A. 1 month
 - B. 3 months
 - C. 6 months
 - D. 12 months

USING PREVENTIVE AGENTS

Basic Level Question

20. Each of the following would be an appropriate recommendation for this patient's oral self-care program EXCEPT one. Which one is the EXCEPTION?
 - A. Automatic toothbrush
 - B. Power-driven oral irrigation device
 - C. Home fluoride rinse
 - D. Interproximal brush
 - E. Floss holder

PROVIDING SUPPORTIVE TREATMENT SERVICES

Competency Level Questions

21. To improve the restoration present on the mesial of the maxillary right first molar, the dentist would most likely
 - A. Smooth the mesial overhang using fine diamond interproximal finishing strips.
 - B. Remove the mesial overhang using a flame-shaped silicon carbide bur.
 - C. Cut the mesial overhang by inserting a gold knife.
 - D. Trim the mesial overhang using a fine-fluted, pointed tungsten carbide bur.
22. Which of the following should NOT be recommended for this patient's TMD?
 - A. Soft diet
 - B. Moist heat to face/jaw
 - C. Acetaminophen (Tylenol Arthritis Extended Relief)
 - D. Occlusal appliance
 - E. Physician referral

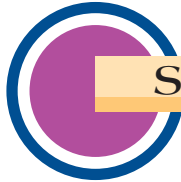
DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

23. Each of the following enhance effective communication with this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Remove face mask and face the patient when speaking.
 - B. Give frequent and immediate feedback regarding demonstration of self-care techniques.
 - C. Use simple drawings to explain dental procedures.
 - D. When changing positions, move slowly around the patient.
 - E. Allow the patient to get himself into position for treatment; provide assistance only when asked.
24. The implied consent given by this patient does NOT include
 - A. Disclosing to determine the presence of biofilms
 - B. Periodontal debridement of one quadrant
 - C. Occlusal evaluation and test for fremitus
 - D. Probing of all four quadrants
 - E. Physical extraoral palpation of TMJ function

Competency Level Question

25. Which of the following would NOT be a requirement for this patient's informed consent?
- A. Explanation of why periodontal debridement may not reduce pocket depths
 - B. Warning that treatment may cause his gums to recede
 - C. Listing of alternative treatments and their costs
 - D. His granddaughter's presence when he signs the documents
 - E. Caution that disease may progress with no treatment



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: excessive bleeding during instrumentation

Evidenced by: medications reported on the health history

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: presence of marginal plaque

Evidenced by: bleeding on probing and periodontal disease

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: future caries risk

Evidenced by: caries and xerostomia

Goals: *avoid future caries; improve oral conditions by supplementing salivary flow*

Dental hygiene actions/interventions: *perform comprehensive dental charting and interpretation of radiographs; refer to dentist for confirmation of the presence of caries and to determine which lesions need restoration and which may benefit from remineralization therapies; assess severity of diminished salivary flow; educate patient regarding the interrelationship between saliva and caries; determine the appropriate recommendation for reduced salivary flow; determine the need for fluoride therapies both professional and self-applied.*

Deficit identified in conceptualization and problem solving

Due to: lack of awareness of effective brushing technique

Evidenced by: marginal plaque; self-report of scrub brushing technique

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: ineffective daily home care

Evidenced by: periodontal disease and caries

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

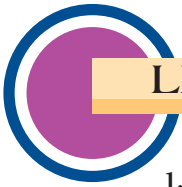
For this patient (P), will chewing sugarless gum (Biotène Dry Mouth Gum®) (I) as compared with chewing mints (Oral Health Xylimelts®) (C) help with the condition of moderate xerostomia (O)?



MAKING ETHICAL DECISIONS

This patient enjoys tipping for good service. As you prepare to dismiss the patient he hands you a \$5 bill and tells you to have a cup of coffee on him when you take your break.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. List 10 physiologic age-related changes of the human body and discuss their impact on dental hygiene treatment.
2. To simulate decreased manual dexterity, often encountered in stroke survivors, brush your teeth using your nondominant hand. (If you are right-handed, brush your teeth with your left hand.) Disclose and evaluate your plaque removal ability. Write an essay on how you would assist a patient with reduced manual dexterity to perform oral self-care.
3. List a belief about health care from your own cultural background. How does this belief assist in helping and/or hindering access to health care for the people of your culture?

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CHAPTER 10

CASE H Virginia Carson



SITUATION

Virginia Carson appears to struggle into the operatory and to get situated in the treatment chair. She wheezes and appears out of breath with each movement. She does not drive, and relies on the community's senior citizen transportation. This patient knows that she needs to be here, but does not like "going to the dentist."

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Categorize blood pressure readings.
 - B. Classify furcation involvement.
 - C. Determine preliminary diagnosis of oral conditions that deviate from normal.
2. **Obtain and interpret radiographs.**
 - A. Differentiate between a variety of normal radiographic anatomical landmarks.
 - B. Interpret radiolucencies and radiopacities observed on a periapical radiograph.
3. **Plan and manage dental hygiene care.**
 - A. Recognize medical conditions that require antibiotic premedication.
 - B. Identify appointment-planning considerations for the geriatric patient.
 - C. Take steps to avoid a medical emergency.
 - D. Select appropriate interdental devices based on patient needs.
 - E. Identify risks to oral and general health.
4. **Perform periodontal procedures.**
 - A. Identify types of periodontal pockets.
 - B. Classify periodontal disease based on extent and severity.
 - C. Select appropriate scaling instruments for effective and efficient calculus removal.
 - D. Differentiate between the severity of periodontal conditions that affect prognosis.
 - E. Identify periodontal risk indicators.
5. **Use preventive agents.**
 - A. Select treatment recommendations following reevaluation of initial periodontal debridement.
6. **Provide supportive treatment services.**
 - A. Recommend appropriate treatment interventions based on patient need.
 - B. Apply the National Cancer Institute and the Agency for Healthcare Research and Quality strategy the Five A's approach to assist with smoking cessation.
 - C. Recommend appropriate denture care.
7. **Demonstrate professional responsibility.**
 - A. Demonstrate effective communication strategies for the geriatric patient.
 - B. Identify professional responsibility in maintaining an oral health care facility accessible to the geriatric patient.
 - C. Recognize ethical treatment planning for the geriatric patient.
 - D. Communicate appropriately with the medically compromised geriatric patient about the link between periodontal diseases and systemic health.

GERIATRIC PATIENT—Virginia Carson
PATIENT HISTORY SYNOPSIS

Age 66 years
 Gender female
 Height 5' 3"
 Weight 165 lbs.

VITAL SIGNS

Blood Pressure 142/94 mm Hg
 Pulse Rate 69 bpm
 Respiration 14 rpm

1. Under care of physician

Yes ☒ No ☐ Condition: congestive heart failure

2. Hospitalized within the last 5 years

Yes ☒ No ☐ Reason: heart attack

3. Has or had the following conditions

hepatitis C
bronchitis (COPD—chronic obstructive pulmonary disease)

4. Current medications

atenolol (Tenormin)— β , adrenergic blocker
digoxin (Lanoxin®)—cardiac glycoside
enalapril (Vasotec®)—angiotensin-converting enzyme (ACE) inhibitor
fluticasone/salmeterol (Advair Diskus®)—corticosteroid inhalant combination
furosemide (Lasix®)—diuretic
Multivitamin (Stresstabs® High Potency Advanced)—over-the-counter dietary supplement

5. Smokes or uses tobacco products

Yes ☒ No ☐

6. Is pregnant

Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Although her physician has recommended smoking cessation, this patient still smokes a pack of cigarettes a day.

DENTAL HISTORY

Received a new, full maxillary denture last month from a dental lab without receiving comprehensive dental care for the rest of her oral conditions. The denture appears loose and does not have a natural appearance. Uses a fluoride toothpaste.

SOCIAL HISTORY

A widow, living comfortably on a small pension, this patient takes advantage of senior citizen assistance available to her in the community. She recently moved to a senior citizen condominium where she is acquiring a new social life.

CHIEF COMPLAINT

Her immediate dental complaint was addressed with a new full maxillary denture that replaces her fractured ten-year-old appliance. The nurse at her physician's office told her she has halitosis and recommended she make a dental hygiene appointment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2																
Probe 1																
F																
P																
Probe 1																
Probe 2																
R																
Probe 2																
Probe 1																
L																
F																
Probe 1																
Probe 2																

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Probe 2																
Probe 1																
L																
F																
Probe 1																
Probe 2																

CURRENT ORAL HYGIENE STATUS

Poor oral hygiene with generalized heavy marginal plaque and calculus. She brushes once daily and has tried flossing, but her teeth are too tight and the floss does not fit in between them.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Spontaneous bleeding.

 Clinically visible carious lesion

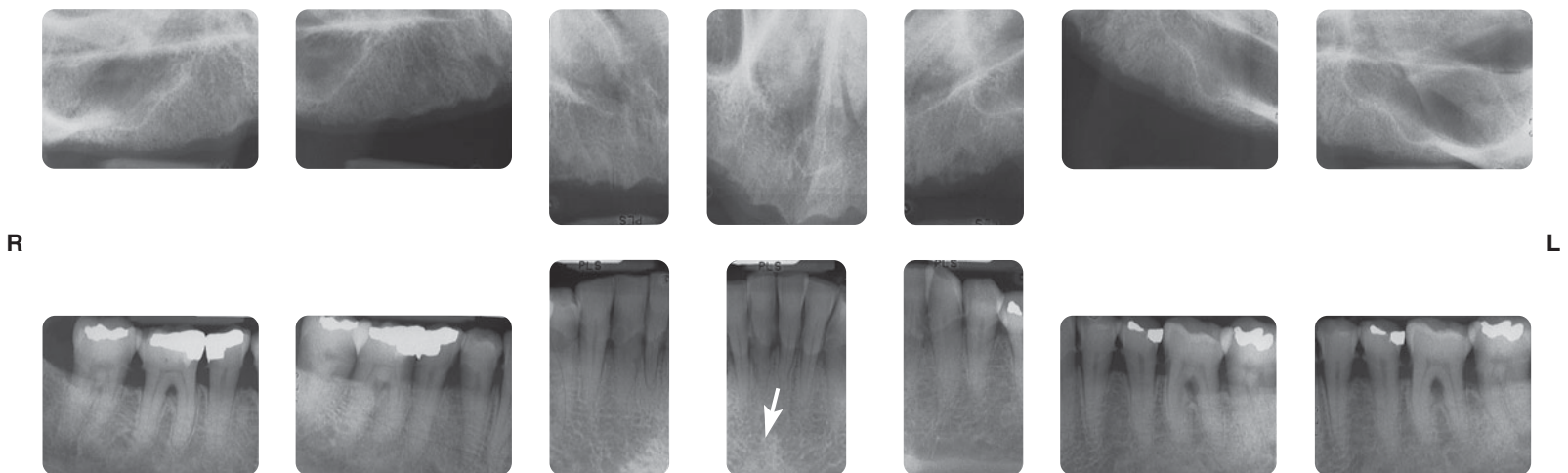
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Full denture in place



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. This patient's blood pressure category is
 - A. Hypotension
 - B. Normal
 - C. Prehypertension
 - D. Hypertension stage 1
 - E. Hypertension stage 2
2. What is the classification of furcation involvement of the mandibular right first molar?
 - A. Grade I
 - B. Grade II
 - C. Grade III
 - D. Grade IV

Competency Level Question

3. Which of the following is the most likely assessment of the condition seen on this patient's palate?
 - A. Primary herpetic gingivostomatitis
 - B. Chronic atrophic candidiasis
 - C. Herpetiform aphthous ulcer
 - D. Melanin pigmentation
 - E. Torus palatinus

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

4. What is the interpretation of the radiopaque circle, identified by the arrow, seen on the mandibular central incisor periapical radiograph?
 - A. Genial tubercles
 - B. Symphysis
 - C. Mental foramen
 - D. Retrocuspid papilla
 - E. Trabeculae
5. What is the scalloped radiopaque line visible radiographically across the mandibular central incisors?
 - A. Cementoenamel junction
 - B. Dense enamel layer
 - C. Calculus buildup
 - D. Composite resin
 - E. Cementicles

Competency Level Questions

6. Which of the following is the most likely reason for the radiopaque appearance of the nasal fossa?
 - A. Soft tissue of the nose imaged
 - B. Film fog or electronic noise (digital)
 - C. Sinus infection
 - D. Deviated septum
 - E. Conchae present

7. Which one of the following is the most likely interpretation of the radiolucency observed on the distal surface of the mandibular right first premolar?
 - A. Toothbrush abrasion
 - B. Cervical burnout
 - C. Root fracture
 - D. Abfraction lesion
 - E. Caries

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

8. Which of the following medical conditions predisposes this patient for the need to premedicate with prophylactic antibiotic coverage?
 - A. Bronchitis
 - B. Hepatitis C
 - C. Congestive heart failure
 - D. Spontaneous gingival bleeding
 - E. None of the above
9. The best time to schedule appointments for this patient is
 - A. First appointment of the morning
 - B. Early morning, 8:00 A.M. to 10:00 A.M.
 - C. Midmorning to early afternoon, 11:00 A.M. to 2:00 P.M.
 - D. Late afternoon, after 3:00 P.M.
 - E. Last appointment of the day

Competency Level Questions

10. Each of the following will help avoid an emergency situation when treating this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Use anesthesia with vasoconstrictor.
 - B. Avoid orthostatic hypotension.
 - C. Use a semisupine or upright position for treatment.
 - D. Follow stress reduction protocol.
 - E. Monitor vital signs.
11. Which of the following interdental devices should NOT be recommended for this patient?
 - A. Wooden interdental cleaner
 - B. Tufted dental floss
 - C. Interdental tip
 - D. Saline irrigation
 - E. Toothpick in holder
12. This patient is at increased risk for each of the following EXCEPT one. Which one is the EXCEPTION?
 - A. Halitosis
 - B. Nicotine stomatitis
 - C. Periodontal disease
 - D. Extrinsic tooth stains
 - E. Oral cancer

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

13. Which of the following best describes the type of periodontal pocketing found on the mesial aspect of the mandibular left second premolar?
 - A. Gingival sulcus
 - B. Gingival pocket

- C. Pseudopocket
 - D. Periodontal intrabony pocket
 - E. Periodontal suprabony pocket
14. Based on extent and severity, how would this patient's periodontal disease be classified?
 - A. Localized moderate
 - B. Localized advanced
 - C. Generalized early
 - D. Generalized moderate
 - E. Generalized advanced
 15. Which one of the following instruments should be selected to begin removal of supragingival calculus from the lingual surfaces of this patient's mandibular anterior teeth?
 - A. Universal curette
 - B. Area-specific curette
 - C. Anterior sickle scaler
 - D. Standard ultrasonic tip
 - E. Periodontal ultrasonic tip

Competency Level Questions

16. Which of the following teeth presents with the poorest prognosis?
 - A. Mandibular right second molar
 - B. Mandibular right first premolar
 - C. Mandibular right central incisor
 - D. Mandibular left lateral incisor
 - E. Mandibular left second premolar
17. This patient presents with each of the following risk indicators for periodontal disease EXCEPT one. Which one is the EXCEPTION?
 - A. Age
 - B. Gender
 - C. Cigarette smoking
 - D. Poor home care habits
 - E. Socioeconomic status

USING PREVENTIVE AGENTS

Competency Level Question

18. Following her six-week reevaluation appointment, what should be scheduled next for this patient?
 - A. Periodontist referral
 - B. Pulp vitality testing
 - C. Pit and fissure sealants
 - D. Dental restorations
 - E. Desensitization

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

19. Which one of the following interventions is most appropriate for this patient?
 - A. Dietary counseling
 - B. Oral cancer referral
 - C. Dental implant evaluation
 - D. Tobacco cessation program
 - E. Advanced infection control procedures

20. Using the National Cancer Institute and the Agency for Healthcare Research and Quality strategy Five A's approach to smoking cessation, order these statements and questions for maximum success in communicating with this patient. Match each letter with its proper sequence number.

Begin with the statement or question you would use first.		
1. ____		A. What barriers or hurdles will you have to manage to get ready to quit smoking?
2. ____		B. What do you think about picking the date of our reevaluation appointment as your date to quit smoking?
3. ____		C. Based on your periodontal condition, the best advice I can give you is the recommendation to quit smoking.
4. ____		D. Since tobacco is linked with oral health, I would like to ask you about your smoking.
5. ____		E. If it is okay with you, let's continue our discussion on smoking cessation at your reevaluation appointment.

21. To prevent stain accumulation on her new denture, which of the following home care regimens should be recommended?
- Soak weekly in mouthwash.
 - Brush daily with dentifrice using a denture brush.
 - Immerse in sodium hypochlorite overnight.
 - Brush once a month using a household scouring powder.
 - Clean by placing in the dishwasher once every six months.

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

22. Each of the following will help improve communication with this patient EXCEPT one. Which one is the EXCEPTION?
- Face the patient, make eye contact, and speak clearly.
 - Be nonjudgmental in recommending that she take steps to improve her health.
 - Eliminate distracting background noise and music.
 - Repeat self-care instructions and give her written take-home instructions.
 - Use endearing terms such as "Honey" and "Dear" to address her in an accepting manner.
23. A throw rug and reduced hallway lighting can be physical barriers and potential hazards for the older adult patient with impaired vision or motor control.

Altering the oral health care treatment facility for the older adult patient may be viewed as discriminatory.

- The first statement is true, the second statement is false.
- The first statement is false, the second statement is true.
- Both statements are true and related.
- Both statements are true but not related.
- Both statements are false.

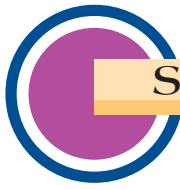
Competency Level Questions

24. Dental hygiene care for this patient should be based on palliative treatment.

Long-term periodontal health maintenance is important for the medically compromised older adult.

- The first statement is true, the second statement is false.
- The first statement is false, the second statement is true.
- Both statements are true.
- Both statements are false.

25. Each of the following is applicable and appropriate to approach a discussion with this patient EXCEPT one. Which one is the EXCEPTION?
- “Periodontal disease and cardiovascular disease share the same risk factors.”
 - “Patients with periodontal disease have higher levels of cardiovascular disease.”
 - “Poor oral health, periodontitis, and oral infections increase the odds of myocardial infarction.”
 - “Periodontal disease causes coronary heart disease and chronic obstructive pulmonary disease.”
 - “An association has been established between periodontitis and chronic obstructive pulmonary disease.”



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: tobacco usage

Evidenced by: periodontal disease diminished response to treatment

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from fear and stress

Due to: uneasiness regarding dental hygiene appointments

Evidenced by: lack of motivation and commitment to regular professional care

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: bacterial plaque and inadequate oral health behaviors

Evidenced by: the presence of gingival inflammation, pockets, and bleeding

Goals: _____

Dental hygiene actions/interventions: _____

Due to: chronic infection

Evidenced by: degree of periodontal involvement

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving**Due to:** misconceptions associated with oral health care**Evidenced by:** lack of concern regarding condition of mandibular teeth**Goals:** _____**Dental hygiene actions/interventions:** _____**Deficit identified in responsibility for oral health****Due to:** irregular dental hygiene visits**Evidenced by:** heavy calculus deposits**Goals:** *schedule and keep regular periodontal maintenance appointments during this next year***Dental hygiene actions/interventions:** *help patient identify roadblocks to achieving this goal; help patient rate her desire for oral health in relation to these roadblocks; encourage patient to participate in developing solutions that will help her get to the oral health care facility***ASSESSING RISK**

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.

**APPLYING EVIDENCE-BASED PRACTICE**

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

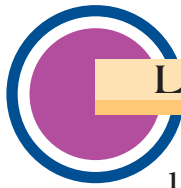
For this patient (P), will a tongue cleaner (such as Oral-B Power Tongue Freshener Toothbrush Head) (I) as compared with a mouthrinse (such as Oxyfresh Power Rinse with Oxygen®) (C) better treat halitosis (O)?



MAKING ETHICAL DECISIONS

This patient received her denture from a dental laboratory without being assessed for comprehensive oral health care. The area in which she lives allows a dental laboratory to staff a dentist whose only role is to prescribe dentures. In other words, the staff dentist assists the dental laboratory with providing low-cost dentures while ignoring the patient's other oral health care needs. After assessing the condition of this patient's mandibular teeth, what will you include in your discussion about the care she received from the dentist and the dental laboratory?

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. **Make a list of possible barriers to receiving regular professional oral health care faced by the geriatric patient. Together with your class, brainstorm possible solutions for overcoming these barriers.**
2. **Based on the needs of this patient, establish priorities in the dental and dental hygiene care plan. Keep in mind the following, which will most likely influence the establishment of these priorities: attitude of the patient toward dental and dental hygiene treatment; physical abilities or disabilities; philosophy and attitude of the health care provider.**
3. **Develop a table or chart that lists the oral manifestations of aging that can be used as an aid in performing an intraoral and extraoral examination of the geriatric patient. Include age-related changes likely to present in the soft tissues of the head and neck region, including the salivary glands, the lips, oral mucosa, and tongue; changes in the teeth that include color, evidence of wear, types of caries, and radiographic findings; and changes in the periodontal tissues including the supporting bone.**

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CHAPTER 11

CASE I Eleanor Gray



SITUATION

Eleanor Gray is a great-grandmother who recently moved to the area with her husband to be closer to their adult daughters and their families. Diagnosed with Alzheimer's disease, she and her husband agreed that being nearer to their children may help lighten the burden of coping with the disease progression. Additionally, the local medical community is known for its resources for patients with Alzheimer's and their families. She plans to enroll in a clinical trial ongoing at the medical center.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Distinguish pathology from common oral conditions.
 - B. Identify the cause of tooth staining.
 - C. Recognize normal and abnormal conditions of the roots of the teeth.
 - D. Identify dental materials.
2. **Obtain and interpret radiographs.**
 - A. Determine the need for vertical bitewing radiographs.
 - B. Identify radiographic anatomy and landmarks.
 - C. List the causes of low-contrast radiographic images.
 - D. Identify the outcomes of radiographic techniques.
3. **Plan and manage dental hygiene care.**
 - A. Link medications with adverse oral side effects.
 - B. Recognize the interrelationship of self-care of natural teeth and of the dental materials used to restore function to the dentition.
 - C. Recommend appropriate oral hygiene aids for the patient with a removable partial denture.
 - D. Establish the appropriate setting for oral self-care instructions for the geriatric patient with Alzheimer's disease.
 - E. Identify contraindications for treatment of the geriatric patient with Alzheimer's disease.
4. **Perform periodontal procedures.**
 - A. Calculate total loss of attachment from patient assessment data.
 - B. Identify the effect of periodontal intervention on tooth mobility.
 - C. Recognize possible adverse effects of non-surgical periodontal procedures.
 - D. Determine the role of secondary dentin.
5. **Use preventive agents.**
 - A. Determine the appropriate fluoride therapy based on patient assessment data.
6. **Provide supportive treatment services.**
 - A. Instruct patient in the appropriate care of a removable partial denture.
 - B. Counsel the geriatric patient with Alzheimer's disease and her family on the interrelationship of oral health, medications, Alzheimer's, and osteoporosis.
7. **Demonstrate professional responsibility.**
 - A. Recognize terms used to describe the demographics of the elderly population.
 - B. Design a treatment plan based on risk and benefits for the geriatric patient with Alzheimer's disease.

GERIATRIC PATIENT—Eleanor Gray
PATIENT HISTORY SYNOPSIS

Age 75 years
Gender female
Height 5' 4"
Weight 135 lbs.

VITAL SIGNS

Blood Pressure 122/82 mm Hg
Pulse Rate 68 bpm
Respiration 18 rpm

1. Under care of physician

Yes ☒ No ☐ Condition: mild late-onset
Alzheimer's disease
osteoporosis

2. Hospitalized within the last 5 years

Yes ☐ No ☒ Reason: _____

3. Has or had the following conditions

knee arthroplasty (total replacement surgery—left
knee) 7 years ago
no complications and no subsequent infections

4. Current medications

donepezil (Aricept®)—acetylcholinesterase
inhibitor
risperidone (Risperdal®)—antipsychotic agent
alendronate sodium (Fosamax®)—bisphosphonate
calcium carbonate supplement (Caltrate® 600)—
over-the-counter supplement

5. Smokes or uses tobacco products

Yes ☐ No ☒

6. Is pregnant

Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Over the last year began to exhibit the following symptoms: short-term memory loss, difficulty performing familiar tasks, disorientation of time and place, all of which have contributed to the diagnosis of Alzheimer's disease. She is being screened to participate in a clinical trial on the progression of Alzheimer's disease at the local research institute.

DENTAL HISTORY

Has undergone extensive dental treatment including orthodontia, endodontic therapy, prosthodontics, and periodontal surgeries. She has been on a periodontal maintenance schedule for several years, alternating three-month appointments with a general practitioner and a periodontist. Uses a fluoride toothpaste.

A defective, loose cantilever fixed bridge was removed 18 months ago and replaced with a removable partial denture.

SOCIAL HISTORY

An avid golfer in the senior ladies league at her club until knee surgery. She and her husband recently moved into a senior community with optional assisted living services near their children and grandchildren. Her husband and daughter report that she has recently begun to be fearful and easily agitated.

CHIEF COMPLAINT

Her family wants to reestablish the periodontal maintenance schedule she was on before moving. However, during her last visit the patient became disruptive and refused treatment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	223	322	212	212	212	212	213	312	212	212	212	212	212	412	X
Probe 1	X	223	323	212	212	212	212	212	212	212	212	212	212	224	433	X
F																
P																
Probe 1	X	213	212	212	211	212	212	212	212	212	323	323	322	323	333	X
Probe 2	X	212	313	212	211	212	212	212	212	212	213	322	222	212	312	X
R																
Probe 2	X	X	X	112	113	212	111	112	112	111	212	212	212	X	212	X
Probe 1	X	X	X	112	212	212	212	212	112	111	212	222	222	X	212	X
L																
F																
Probe 1	X	X	X	423	323	313	423	423	424	324	424	212	312	X	313	X
Probe 2	X	X	X	323	323	212	313	313	313	313	313	212	213	X	313	X
		32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
																17

CURRENT ORAL HYGIENE STATUS

Generalized slight bleeding on probing
Uses a dental water jet.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Family has expressed doubt that she will maintain care of the removable partial denture and has expressed interest in a permanent bridge with implant.

 Clinically visible carious lesion

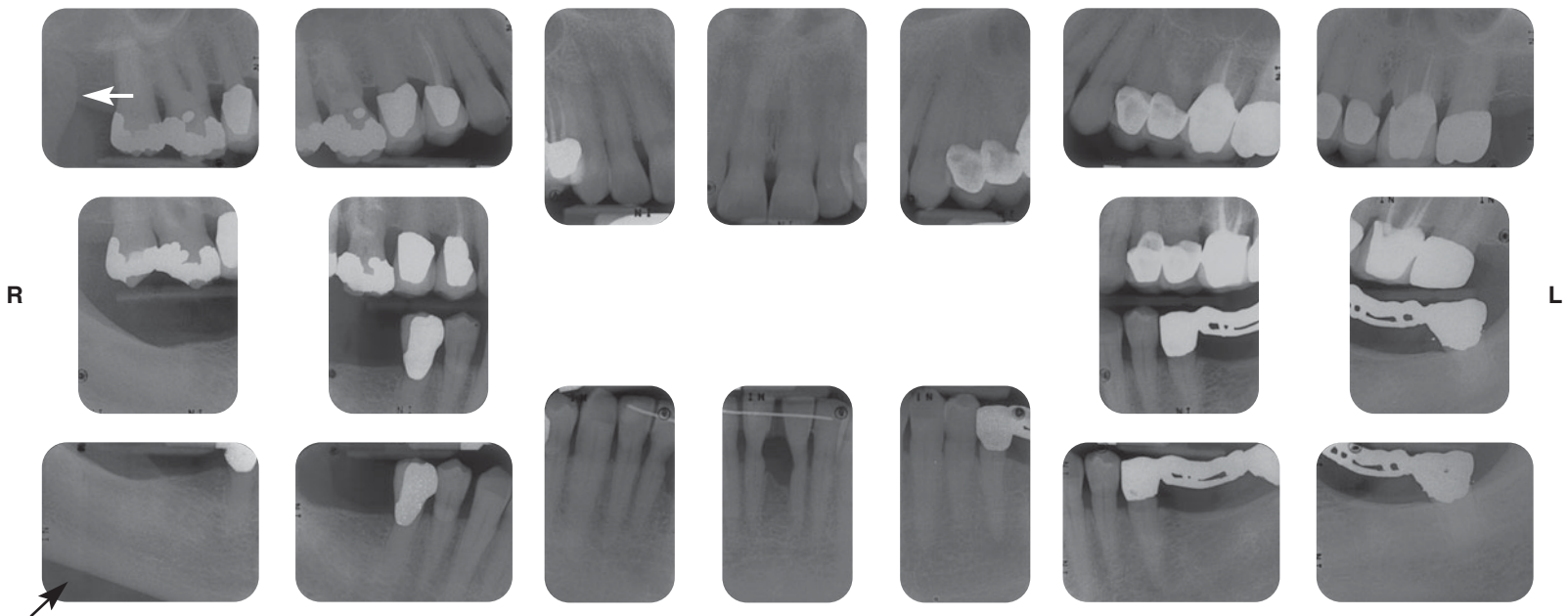
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Partial denture in place



Left side



Right side



Right side
Partial denture in place



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. The raised, hard nodule observed in the midline of the palate (arrow) is most likely
 - A. Denture stomatitis
 - B. A torus palatinus
 - C. Herpangina
 - D. The median palatine suture
 - E. A traumatic ulcer
2. Which of the following can be observed on the lingual surfaces of the maxillary anterior teeth?
 - A. Green stain resulting from poor oral hygiene
 - B. Orange stain resulting from chromogenic bacteria
 - C. Black line stain that often manifests in clean mouths
 - D. Brown stain resulting from foodstuffs such as coffee or tea
 - E. Yellow stain associated with the presence of biofilm
3. Which of the following is the likely explanation for the darker yellow color of the facial aspect of the anterior teeth at the gingival margin?
 - A. Accumulation of biofilm
 - B. Intrinsic, endogenous staining
 - C. Exposed root surfaces
 - D. Effect of medications
 - E. Enamel hypoplasia
4. The mandibular left second premolar is restored with a
 - A. Porcelain-fused-to-metal crown
 - B. Full-coverage cast gold crown
 - C. MODBL amalgam
 - D. Porcelain veneer
 - E. Gold onlay
5. Which of the following mandibular teeth serve(s) as (an) abutment(s)?
 - A. Right second premolar
 - B. Each of the remaining mandibular teeth
 - C. Left central incisor and right central incisor
 - D. Left lateral incisor and right lateral incisor
 - E. Left second premolar and left third molar
6. The missing teeth on the mandibular left have been restored with a
 - A. Cantilever bridge
 - B. Maryland bridge
 - C. Fixed partial denture
 - D. Removable partial denture
 - E. Resin-bonded cast metal bridge

Competency Level Question

7. The metal appearance on the mesial occlusal of the mandibular right premolar indicates
 - A. A post-and-core buildup for support of the crown
 - B. A depression in the crown surface that has picked up stain
 - C. An amalgam restoration present on this portion of the crown
 - D. That occlusal forces have worn through the porcelain exposing the metal
 - E. Where the rest of the partial denture connects with the crown

OBTAINING AND INTERPRETING RADIOGRAPHS*Basic Level Questions*

8. Which of the following is the most likely reason vertical, instead of horizontal, bite-wing radiographs were exposed on this patient?
 - A. To adapt to the presence of tori
 - B. To image more of the alveolar bone
 - C. To assist with managing a gag reflex
 - D. To provide increased comfort during placement of the image receptor
 - E. Usually recommended for the geriatric patient
9. The arrow drawn on the maxillary right molar radiograph is pointing to the
 - A. Coronoid process of the mandible
 - B. Maxillary tuberosity
 - C. Lateral pterygoid plate
 - D. Patient's finger
 - E. Condyle
10. From the following list select the seven possible reasons for the low contrast of these radiographic images.
 - A. Accidental exposure to stray radiation (film)
 - B. White light leak in darkroom during film processing
 - C. Exposure to humid conditions (film)
 - D. Use of old, expired radiographic film
 - E. Contamination from processing chemical fumes (film)
 - F. Storage in a hot location (film)
 - G. Extremely low-exposure settings (digital)
 - H. Exposure of the back of the image receptor (film)
 - I. Exposure of the back of the image receptor (digital)

Competency Level Question

11. Which of the following explains the radiolucency observed in the inferior left corner (arrow) of the mandibular right molar radiograph?
 - A. The overhead white light was turned on in the darkroom before this corner of the film had completely entered the automatic processor.
 - B. The corners of two photostimuable phosphor plates (PSP) used for digital imaging were placed on top of each other on the counter.
 - C. The open end of the PID was positioned an increased distance from the patient and the image receptor.
 - D. The image receptor was not centered within the beam of radiation causing cone-cut error with a rectangular PID.
 - E. Increased vertical angle recorded soft tissue beyond the inferior border of the mandible.

PLANNING AND MANAGING DENTAL HYGIENE CARE*Basic Level Questions*

12. Which of this patient's medications puts her at risk for osteonecrosis of the jaws?
 - A. Donepezil (Aricept)
 - B. Risperidone (Risperdal)
 - C. Alendronate sodium (Fosamax)
 - D. Calcium carbonate (Caltrate)
13. This patient must regularly clean the partial denture to maintain the health status of the mandibular right second premolar.

The longevity of the partial denture depends on the health of the mandibular right second premolar.

- A. The first statement is true, the second statement is false.
- B. The first statement is false, the second statement is true.

- C. Both statements are true.
 - D. Both statements are false.
14. Which of the following brushes should be recommended to help this patient care for her partial denture?
- A. Clasp brush
 - B. Toothbrush used for natural teeth
 - C. Power toothbrush
 - D. Interproximal brush
 - E. End-tuft brush

Competency Level Questions

15. Each of the following should be considered when giving instructions for oral self-care to this patient EXCEPT one. Which one is the EXCEPTION?
- A. Ask permission to include her caregiver in the education process.
 - B. Request that she put on her glasses during instruction and at home during self-care.
 - C. Eliminate distracting background noise and sit facing the patient when speaking.
 - D. Introduce a new oral hygiene aid to augment her use of the oral irrigator.
 - E. Encourage implementation of oral self-care at the same times each day.
16. Each of the following is contraindicated for this patient EXCEPT one. Which one is the EXCEPTION?
- A. Air polishing
 - B. Temporary cessation of Fosamax® prior to scaling
 - C. Implant surgery
 - D. Supine position in the treatment chair
 - E. Short-acting antianxiety medication before appointments

PERFORMING PERIODONTAL PROCEDURES

Basic Level Question

17. At the reevaluation appointment, the measurement of recession on the facial surface of the mandibular left central incisor is 6 mm. What is the total loss of attachment in this region?
- A. 5 mm
 - B. 6 mm
 - C. 7 mm
 - D. 8 mm

Competency Level Questions

18. Which of the following is the reason the mandibular central incisors do not exhibit mobility?
- A. Periodontal splint
 - B. Medication for osteoporosis
 - C. Effective oral self-care
 - D. Surgical intervention
 - E. Regular maintenance appointments
19. The hourglass shape exhibited by the mandibular anterior incisors is most likely caused by
- A. Scrub-method brushing technique
 - B. Years of scaling and root planing
 - C. The use of course grit polishing agents
 - D. Congenital defect
 - E. Chemical erosion

20. Scaling is not likely to elicit hypersensitivity of this patient's root surfaces because of the presence of significant secondary dentin.

Secondary dentin is helping protect this patient's root surfaces from decay.

- A. The first statement is true, the second statement is false
- B. The first statement is false, the second statement is true.
- C. Both statements are true.
- D. Both statements are false.

USING PREVENTIVE AGENTS

Competency Level Question

21. Which of the following would be contraindicated for this patient?
- A. 0.05% sodium fluoride rinse
 - B. 2% sodium fluoride gel
 - C. 5% sodium fluoride varnish
 - D. 1.23% acidulated phosphate fluoride foam
 - E. 0.76% sodium monofluorophosphate dentifrice

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

22. Which of the following agents should be recommended for at-home cleaning of this patient's partial denture?
- A. Bleach (sodium hypochloride)
 - B. Vinegar (acetic acid)
 - C. Hot water
 - D. Hydrogen peroxide
 - E. Household scouring abrasive

Competency Level Question

23. This patient and her family may benefit from counseling regarding each of the following EXCEPT one. Which one is the EXCEPTION?
- A. A link between joint replacement and prophylactic premedication
 - B. A link between osteoporosis and periodontal disease
 - C. A link between calcium carbonate supplements and calculus formation
 - D. A link between bisphosphonate therapy and osteonecrosis of the jaws
 - E. A link between the caregiver's active participation in the patient's oral self-care and oral health

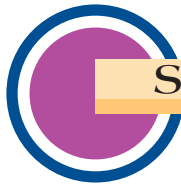
DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

24. Classifying this patient as "aged" is a form of ageism.
- This patient is considered functionally dependent.
- A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. Both statements are false.

Competency Level Question

25. Which of the following is the best course of action considering the defective restorative treatment of the mandibular left second premolar?
- A. Applying composite material to the facial surface
 - B. Metal bonding composite veneer to the facial surface
 - C. Removing the defective crown and replacing with a new fixed bridge
 - D. Removing the defective crown and replacing with a partial denture similar to the one recently applied to the mandibular right side
 - E. No restorative action required at this time.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her and her potential caregivers identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: risk of osteonecrosis of the jaws

Evidenced by: medication

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from fear and stress

Due to: disorientation and confusion resulting from the progression of Alzheimer's disease

Evidenced by: anxiety and disruption caused at previous dental hygiene appointment

Goals: *establish a three-month periodontal maintenance schedule for the purpose of achieving maximum beneficial care comfortably*

Dental hygiene actions/interventions: *consult with the caregiver to determine the best time of day for appointments; schedule short appointments; schedule appointments when the office is least busy; eliminate distracting background noise, such as music, ultrasonic scaling, or dental hand piece in adjacent treatment rooms; schedule treatment with the same dental hygienist and same dental hygiene assistant, and in the same treatment room each time; allow her caregiver to remain in the treatment room to assist with verbal communication and with interpreting the patient's body language as needed; maintain a warm, caring attitude; smile and use comforting touch if it does not frighten the patient; consult with physician and dentist regarding the use of anti-anxiety medication before appointments*

Deficit identified in conceptualization and problem solving

Due to: lack of understanding of the interrelationship of medical conditions and medications and periodontal disease and oral health

Evidenced by: request for dental implant

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: progression of Alzheimer's disease

Evidenced by: gingivitis

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

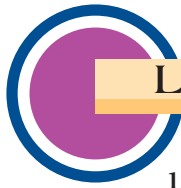
For this patient (P), will a sonic denture cleaner with UV technology (such as VIOLight® Dental Spa) (I) as compared with an ultrasonic denture cleaner (such as Branson® B200 Ultrasonic Cleaner) (C) better clean her removable partial denture (O)?



MAKING ETHICAL DECISIONS

As the patient's Alzheimer's disease further disables her, preventing easy transportation to the office for treatment, her husband asks you, as her dental hygienist, to come to their home to provide a periodontal exam, and do whatever you can to assist her with maintaining her oral health. He knows that his wife's oral health is important and because she had extensive dental treatment in the past, he is worried about her declining ability to perform oral self-care. He has offered to pay you.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Develop a self-care instructional manual for caregivers of a patient with Alzheimer's disease. Using a digital camera, produce images that will supplement your manual or that can be used as pull-out sheets that the caregiver can tape to the bathroom mirror to aid the patient in performing the skills needed to maintain oral health.
2. Develop reference sheets with tips and strategies that the dental hygienist can use when treating the patient with mild, moderate, and severe stages of Alzheimer's disease.
3. Develop a comprehensive three-part self-care program for the patient preparing for oral rehabilitation and the placement of multiple, complex restorative treatments. Part 1 should instruct and evaluate the patient's ability to effectively remove bio-film; part 2 should include instruction in methods of self-care while temporary restorations are in place; and part 3 should focus on self-care techniques that meet the needs of the rehabilitated mouth.

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CHAPTER 12

CASE J *Thoroughgood Epps*



SITUATION

Thoroughgood Epps recently retired as an officer in the armed services. He is currently attending college to train for a new career since leaving the Army. He is still being treated at a local veteran's hospital for osteoarthritis and became a dental implant candidate after a car accident three years ago.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Identify dental materials.
 - B. Classify restorations.
2. **Obtain and interpret radiographs.**
 - A. Interpret a panoramic radiograph.
 - B. Utilize radiographs to determine characteristics of dental implants.
 - C. Interpret deviations from normal appearance of structures noted on radiographs.
3. **Plan and manage dental hygiene care.**
 - A. Identify possible adverse oral effects of medications.
 - B. Introduce appropriate oral self-care devices for the patient with dental implants and fixed bridges.
 - C. Apply appropriate dental hygiene treatment alterations for the patient with degenerative joint disease.
 - D. Select a dental hygiene care plan for periodontal debridement based on patient needs.
4. **Perform periodontal procedures.**
 - A. Select appropriate debridement instruments based on the patient's oral conditions.
 - B. Order the stages of periodontal implant surgery.
 - C. Determine periodontal maintenance intervals for the patient with dental implants.
 - D. Identify the effect of untreated caries on periodontal tissue healing.
 - E. Select appropriate assessment parameters for evaluating the success of dental implants.
5. **Use preventive agents.**
 - A. Select appropriate preventive agents based on patient needs.
 - B. Identify contraindications for using preventive agents and procedures given patient characteristics.
6. **Provide supportive treatment services.**
 - A. Select the appropriate extrinsic stain removal procedure based on conditions the patient presents.
7. **Demonstrate professional responsibility.**
 - A. Identify the role the patient plays in maintaining oral health.
 - B. Determine the appropriate radiographic assessment of need based on the conditions the patient presents.
 - C. Identify dental implant candidate assessment criteria.
 - D. Evaluate the quality of dental restorations.

SPECIAL NEEDS PATIENT—Thoroughgood Epps**PATIENT HISTORY SYNOPSIS**

Age 43 years
 Gender male
 Height 6' 0"
 Weight 210 lbs.

VITAL SIGNS

Blood Pressure 120/82 mm Hg
 Pulse Rate 63 bpm
 Respiration 14 rpm

- Under care of physician
 Yes ☒ No ☐
 Condition: osteoarthritis (degenerative joint disease)
- Hospitalized within the last 5 years
 Yes ☒ No ☐
 Reason: car accident
- Has or had the following conditions
Received steroid injections for acute flare-ups of pain.
Currently taking Toradol® for acute pain.
- Current medications
ketorolac (Toradol)—nonsteroidal anti-inflammatory drug
acetaminophen (Tylenol Arthritis Pain Extended Relief)—analgesic trolamine
salicylate (Aspercreme®)—analgesic topical ointment
- Smokes or uses tobacco products
 Yes ☐ No ☒
- Is pregnant
 Yes ☐ No ☐ N/A ☒

MEDICAL HISTORY

His physician recently prescribed Toradol for five days to help manage acute pain associated with C3 to C7 of the cervical spine. He has had numerous x-ray examinations of his neck, back, and chest in the past three years.

DENTAL HISTORY

Restoration to mandibular anterior region following a car accident three years ago. Does not know if his toothpaste contains fluoride.

SOCIAL HISTORY

Single and enjoying a new life since retiring from active military duty.

CHIEF COMPLAINT

Seeking to maintain his oral health since leaving the military.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	222	313	313	312	212	312	211	212	211	112	112	313	X	323	X
Probe 1	X	222	224	423	323	313	312	212	212	212	212	112	313	X	425	X
F																
P																
Probe 1	X	324	413	313	312	222	222	223	312	212	212	223	324	X	524	X
Probe 2	X	213	213	312	212	211	112	212	212	212	112	112	213	X	312	X
R																
Probe 2	322	X	223	312	212	212	X	X	X	X	X	X	214	413	X	424
Probe 1	435	X	534	322	322	212	X	X	X	X	X	X	224	334	X	534
L																
F																
Probe 1	435	X	434	423	423	323	X	X	X	X	X	X	334	435	X	534
Probe 2	424	X	324	412	212	213	X	X	X	X	X	X	325	523	X	424
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

CURRENT ORAL HYGIENE STATUS

Light subgingival calculus interproximally in the posterior regions. Generalized moderate interproximal plaque accumulation with moderate bleeding on probing localized in the maxillary posterior regions. Uses waxed dental floss several times a week and toothpicks after meals. He was given floss threaders to clean the mandibular anterior region, but he reports that he hasn't had much success at using them.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

None.

Clinically visible carious lesion

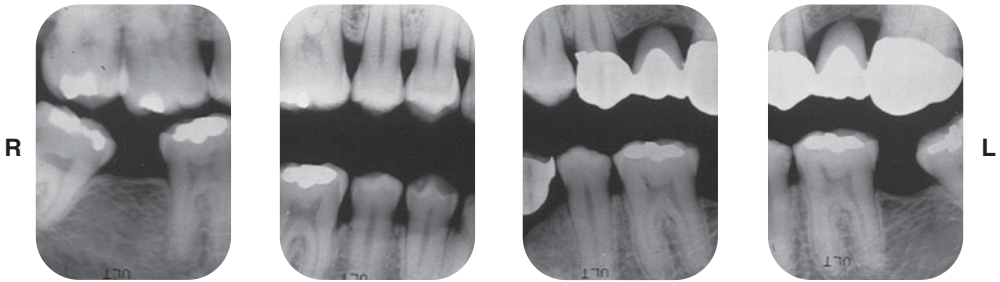
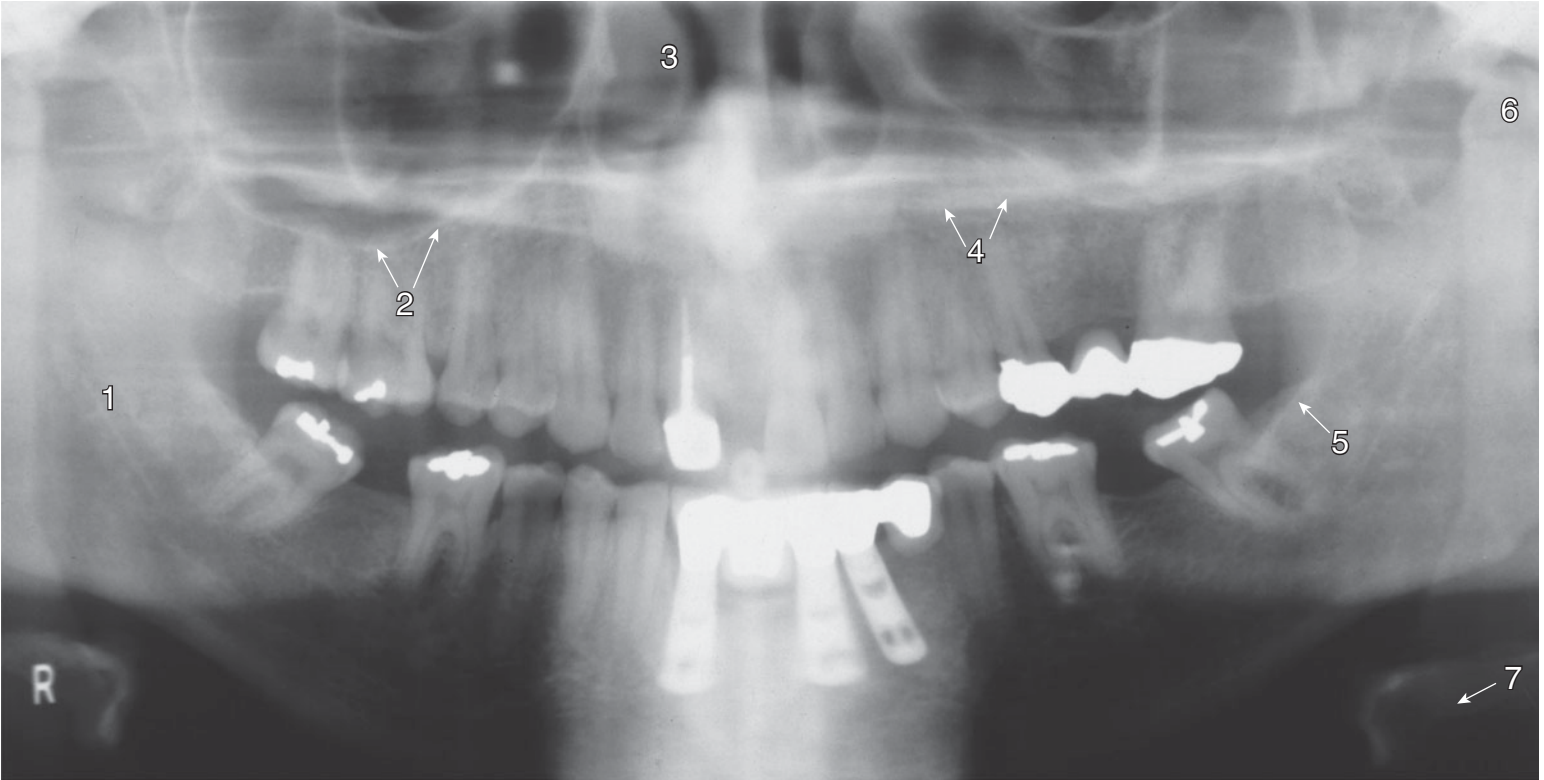
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following term applies to the maxillary left second molar?
 - A. Abutment
 - B. Pontic
 - C. Retainer
 - D. Cantilever
 - E. Rest
2. What classification is the restoration on the mandibular left first molar?
 - A. Class I
 - B. Class II
 - C. Class III
 - D. Class IV
 - E. Class V

Competency Level Question

3. Why does the left side of the mandibular anterior restorative treatment appear not to be attached to the adjacent natural tooth?
 - A. The implant has failed.
 - B. This is a cantilever pontic.
 - C. The tooth root has resorbed.
 - D. There is a clasp missing from the bridge.
 - E. This portion of the restoration is temporary.

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

4. For each number noted on the panoramic radiograph, select the most likely interpretation. (Answers may be used only once.)

Tooth	Interpretation
____ 1. Thin radiolucent structure outlined by faint paired radiopaque lines	A. Condyle
____ 2. Thin radiopaque line	B. Hard palate
____ 3. Faint radiopaque structure	C. Hyoid bone
____ 4. Radiopaque horizontal band	D. Mandibular canal
____ 5. Radiopaque landmark	E. Nasal conchae
____ 6. Rounded radiopaque structure	F. Oblique ridge
____ 7. Faint radiopaque structure	G. Wall of the maxillary sinus

5. With what type of implant does this patient present?
 - A. Endodontic
 - B. Subperiosteal
 - C. Transosteal
 - D. Endosteal
 - E. Post and core

6. Which of the following describes the implant?
 - A. Blade
 - B. Cylinder
 - C. Staple
 - D. Plate
 - E. Screw

Competency Level Questions

7. Which of the following explains the bilateral increased radiolucencies in the regions of the submandibular fossae?
 - A. Pathologic bone resorption or unexplained bone loss
 - B. Superimposition of several structures imaged in the same place
 - C. Negative shadows representing areas of decreased density
 - D. Radiographic error that resulted in black artifacts
 - E. Accidental exposure of the film to white light
8. Which of the following is observed in the pulp chamber of the mandibular right first molar?
 - A. Secondary dentin
 - B. Enamel pearl
 - C. Condensing osteitis
 - D. Hypercementosis
 - E. Dens invaginatus

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

9. This patient's medications put him at risk for developing which of the following?
 - A. Glossitis
 - B. Angular cheilitis
 - C. Gingival hyperplasia
 - D. Xerostomia
 - E. Black hairy tongue
10. Which one of these oral hygiene aids might be contraindicated for this patient?
 - A. Wooden wedges
 - B. Holder for toothpick
 - C. End-tuft brush
 - D. Interproximal brush
 - E. Tufted floss

Competency Level Questions

11. Each of the following is recommended for managing this patient's treatment EXCEPT one. Which one is the EXCEPTION?
 - A. Use a semisupine position.
 - B. Use physical supports such as a neck pillow.
 - C. Allow for frequent position changes.
 - D. Schedule short appointments.
 - E. Schedule morning appointments.
12. Which of the following is the most appropriate dental hygiene care plan for this patient?
 - A. One 1-hour appointment for oral prophylaxis, followed by a maintenance appointment in three to four months
 - B. One 90-minute appointment for full-mouth disinfection and one 1-hour appointment 24 hours later to evaluate tissue response and perform a second full-mouth disinfection if inflammation persists, followed by a reevaluation appointment in four to six weeks

- C. One 1-hour appointment for full-mouth debridement and one 45-minute appointment 7 to 10 days later to evaluate tissue response and to instrument if inflammation persists, followed by a reevaluation appointment in four to six weeks
- D. One 90-minute appointment for half-mouth periodontal debridement and one 90-minute appointment 7 to 10 days later for half-mouth periodontal debridement of the other side, followed by a reevaluation appointment in four to six weeks
- E. Four 1-hour appointments scheduled 7 to 10 days apart for periodontal debridement by quadrant, followed by a reevaluation appointment in four to six weeks

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

- 13. Which of the following hand-activated instruments would be the best choice to effectively and efficiently debride all natural teeth?
 - A. Area-specific curets
 - B. Universal curets
 - C. Extended-shank curets
 - D. Sickie scalers
 - E. Periodontal files
- 14. Instruments made of each of the following types of materials may be used to scale subgingival deposits in the mandibular anterior region of this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Metal
 - B. Plastic
 - C. Gold tipped
 - D. Nylon
 - E. Graphite

Competency Level Questions

- 15. Order these steps to surgical placement of the restorative treatment noted in the patient's mandibular anterior region. Match each letter with its proper sequence number.

Begin with the first step.		
1. ____		A. A surgical guide stent is constructed.
2. ____		B. An abutment is placed on top of the implant and sutured so that the abutment protrudes through the periosteum.
3. ____		C. A prosthetic restorative appliance is fabricated and oral self-care instructions are provided.
4. ____		D. A hole is drilled into the bone and an implant anchor is placed into the hole. The tissue is sutured over the anchor.
5. ____		E. A healing cap is positioned on top of the abutment.

- 16. What is the appropriate length of time between periodontal maintenance appointments for this patient's recall?
 - A. One-month intervals
 - B. Six-week intervals
 - C. Three-month intervals
 - D. Six-month intervals
 - E. Dictated by patient needs

17. Which of the following may have contributed to the lack of tissue response in the interproximal region of the mandibular left second premolar and first molar at the six-week reevaluation appointment?
 - A. Inappropriate time interval for tissue response
 - B. Bacterial seeding from dental caries
 - C. History of repeated radiation exposure
 - D. Undetected systemic conditions
 - E. Inappropriate use of toothpicks
18. Which of the following is the most reliable indicator of this patient's implant success?
 - A. Gingival color
 - B. Papillary shape
 - C. Lack of mobility
 - D. Pocket depths
 - E. Amount of bleeding on probing

USING PREVENTIVE AGENTS

Competency Level Questions

19. Which of the following will benefit this patient the most?
 - A. Pit and fissure sealants
 - B. Professional fluoride varnish
 - C. Direct, local application of chlorhexidine
 - D. Oral irrigation with essential oils
 - E. Administration of potassium oxalate
20. Which of the following would be contraindicated for this patient?
 - A. Mouth rinses containing alcohol
 - B. Acidulated phosphate fluoride
 - C. Tartar control dentifrice
 - D. Disclosing solution
 - E. Periapical radiographs

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

21. If necessary, each of the following may be used to remove stains from the implant superstructure EXCEPT one. Which one is the EXCEPTION?
 - A. Ultrasonic scaling with a slim-diameter tip
 - B. Light, sweeping motion with the air polisher
 - C. Rotary rubber cup with tin oxide
 - D. Sonic scaling with a specially designed plastic tip sleeve
 - E. Nonabrasive paste applied with dental tape

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

22. Who is responsible for maintaining this patient's oral health?
 - A. The dentist
 - B. The dental hygienist
 - C. The dentist and dental hygienist
 - D. The patient
 - E. The patient, dentist, and dental hygienist
23. How often should radiographs be taken of the mandibular anterior region?
 - A. Every 3 months
 - B. Every 6 months
 - C. Once a year
 - D. Once every 24 to 36 months
 - E. Depends on the signs and symptoms at the time of assessment

Competency Level Questions

24. Each of the following played a role in determining that this patient was a good candidate for dental implants EXCEPT one. Which one is the EXCEPTION?
- A. Medical condition
 - B. Attitude and emotional health
 - C. Tobacco use
 - D. Periodontal condition
 - E. Genetic testing
25. Each of the following is a poor design characteristic of the restorative treatment of the mandibular anterior region EXCEPT one. Which one is the EXCEPTION?
- A. Acrylic that contacts the gingival surface
 - B. Left pontic not attached to adjacent natural tooth
 - C. Widely shaped pontics
 - D. Overcontoured crowns
 - E. Narrowed embrasures



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: risk for prolonged bleeding during scaling

Evidenced by: use of nonsteroidal anti-inflammatory drugs (NSAIDs)

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from pain

Due to: risk for aggravating osteoarthritis during dental hygiene treatment

Evidenced by: previous neck injury; recent acute pain

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: insufficient biofilm control

Evidenced by: 4- to 5-mm probing depths and localized moderate bleeding on probing

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition**Due to:** oral conditions conducive to caries**Evidenced by:** two-surface carious lesion**Goals:** *refer for restoration; eliminate conditions conducive to caries; prevent future occurrences***Dental hygiene actions/interventions:** *evaluate cause: presence of cariogenic bacteria, supply of substrate for acid production, and/or host susceptibility; implement strategies based on cause(s); educate patient regarding the caries process; plan a self-care regimen for biofilm control; recommend appropriate oral self-care aids***Deficit identified in responsibility for oral health****Due to:** lack of appropriate oral self-care**Evidenced by:** generalized interproximal and subgingival plaque**Goals:** _____**Dental hygiene actions/interventions:** _____

ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer
- Dental implant complications and failure

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

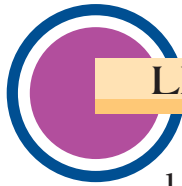
For this patient (P), will recommending he replace his use of toothpicks with a rubber tip (such as a GUM Stimulator) (I) as compared with a single-tuft brush (such as a GUM End-Tuft Toothbrush) (C) provide safe, yet effective removal of biofilm (O)?



MAKING ETHICAL DECISIONS

During self-care instructions this patient expresses frustration with not being able to clean under the restorative treatment present in the mandibular anterior region. You know the design of this prosthetic restorative appliance is poor. He asks for your opinion of the restorative work.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Describe implant instrument design and stroke application used for
 - a. Assessment of the periodontal tissues
 - b. Debridement of the apical region of the prosthetic framework
 - c. Debridement of the abutment posts
 - d. Subgingival debridement
2. Update this patient's dental charting to reflect the restorations present. Copy and enlarge the Adult Clinical Examination chart page from this case and use appropriately colored pencils to draw in all the dental materials observed on the photographs and radiographs.

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CHAPTER 13

CASE K *Johnnie Johnson*



SITUATION

Johnnie Johnson works as a disc jockey in dance clubs and for hire at other functions and parties. He admits to heavy drinking and “a lot of partying.” His alcohol consumption appears to be affecting his physical appearance. His hands tremor slightly and he speaks rapidly and nervously. He does not appear to be intoxicated at this time; however, his breath indicates recent alcohol consumption.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Determine the etiology of oral findings.
 - B. Distinguish anatomic characteristics of the periodontium.
 - C. Identify materials used for dental restorations.
 - D. Identify the risk factors for oral cancer.
 - E. Recognize oral conditions resulting from excessive alcohol intake.
2. **Obtain and interpret radiographs.**
 - A. Interpret radiographic deviation from normal anatomic conditions.
 - B. Identify suspected carious lesions radiographically.
3. **Plan and manage dental hygiene care.**
 - A. Provide the appropriate preprocedural rinse for the alcohol-dependent patient.
 - B. Counsel the patient who presents with oral manifestations of a vitamin deficiency.
 - C. Identify barriers to professional care for the alcohol-dependent patient.
 - D. Predict possible medical emergencies when treating the alcohol-dependent patient.
4. **Perform periodontal procedures.**
 - A. Apply standard and advanced fulcruming techniques.
 - B. Sequence periodontal intervention procedures.
5. **Use preventive agents.**
 - A. Recommend appropriate self-care agents for the patient with high caries activity.
6. **Provide supportive treatment services.**
 - A. Select the appropriate polishing agent when restorations are present.
 - B. Recommend supportive treatments and referrals for the patient with special needs.
7. **Demonstrate professional responsibility.**
 - A. Utilize appropriate interview questions to provide follow-up to the patient's health history.
 - B. Recognize the ethical concept of self-determination.
 - C. Make an informed decision regarding safe treatment of the alcohol-dependent patient.

SPECIAL NEEDS PATIENT—Johnnie Johnson
PATIENT HISTORY SYNOPSIS

Age 38 years
 Gender male
 Height 5' 10"
 Weight 160 lbs.

VITAL SIGNS

Blood Pressure 118/76 mm Hg
 Pulse Rate 90 bpm
 Respiration 24 rpm

1. Under care of physician

Yes ☐ No ☒ Condition: _____

2. Hospitalized within the last 5 years

Yes ☐ No ☒ Reason: _____

3. Has or had the following conditions
stomach problems

4. Current medications

calcium carbonate, magnesium hydroxide (Mylanta®)
—gastrointestinal agent/antacid
famotidine (Pepcid®)—histamine H₂ antagonist
ibuprofen (Advil®)—analgesic/nonsteroidal
anti-inflammatory drug
magnesium hydroxide, aluminum hydroxide,
simethicone (Maalox®)—gastrointestinal
agent/antacid

5. Smokes or uses tobacco products

Yes ☒ No ☐

6. Is pregnant

Yes ☐ No ☐ N/A ☒

MEDICAL HISTORY

Has not had a medical examination in several years and although he is experiencing stomach problems, he has chosen not to see a physician. His current over-the-counter medications are self-prescribed.

DENTAL HISTORY

Extensive dental restorative treatment as a child and a teenager. Has received only sporadic and emergency professional oral health care in the past 10 years. Often schedules appointments that he cancels or does not keep. Grew up in a region without water fluoridation. States that he often does not brush with a toothpaste because it stimulates a gagging sensation.

SOCIAL HISTORY

Somewhat of a loner, his life style in which he sleeps during the day and works in nightclubs and after-hours bars, prevents him from developing long-term friendships. He states that he often does not know the real names of many of the people he encounters. Likewise, "Johnnie" is the working, or stage name, he uses for his job. He recently moved in with his girlfriend in her mobile home.

CHIEF COMPLAINT

Feels that the appearance of his front teeth may be preventing him from securing higher paying DJ opportunities such as performing at private parties and wedding receptions. States that he does not have a lot of money for dental treatment.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	535	534	422	323	313	313	313	312	212	213	213	313	323	436	536	636
Probe 1	645	535	544	434	423	323	323	313	313	313	313	423	324	536	635	635
F																
P																
Probe 1	534	424	434	323	313	313	323	323	323	313	323	424	424	434	524	524
Probe 2	433	323	323	313	313	212	213	313	313	313	213	313	423	424	424	424
R																
Probe 2	534	434	433	323	313	313	313	313	313	313	313	313	323	434	535	535
Probe 1	635	534	433	323	323	323	313	313	313	313	413	424	425	535	535	535
L																
F																
Probe 1	535	635	434	423	323	313	423	423	424	324	424	424	435	635	536	536
Probe 2	534	534	423	323	323	212	313	313	313	313	313	313	324	434	525	525
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

CURRENT ORAL HYGIENE STATUS

Moderate subgingival calculus in the posterior regions. Slight papillary bleeding on probing.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Moderate xerostomia. Bilateral parotid gland enlargement. Patient reports a burning sensation in his tongue with a loss of taste.

Clinically visible carious lesion

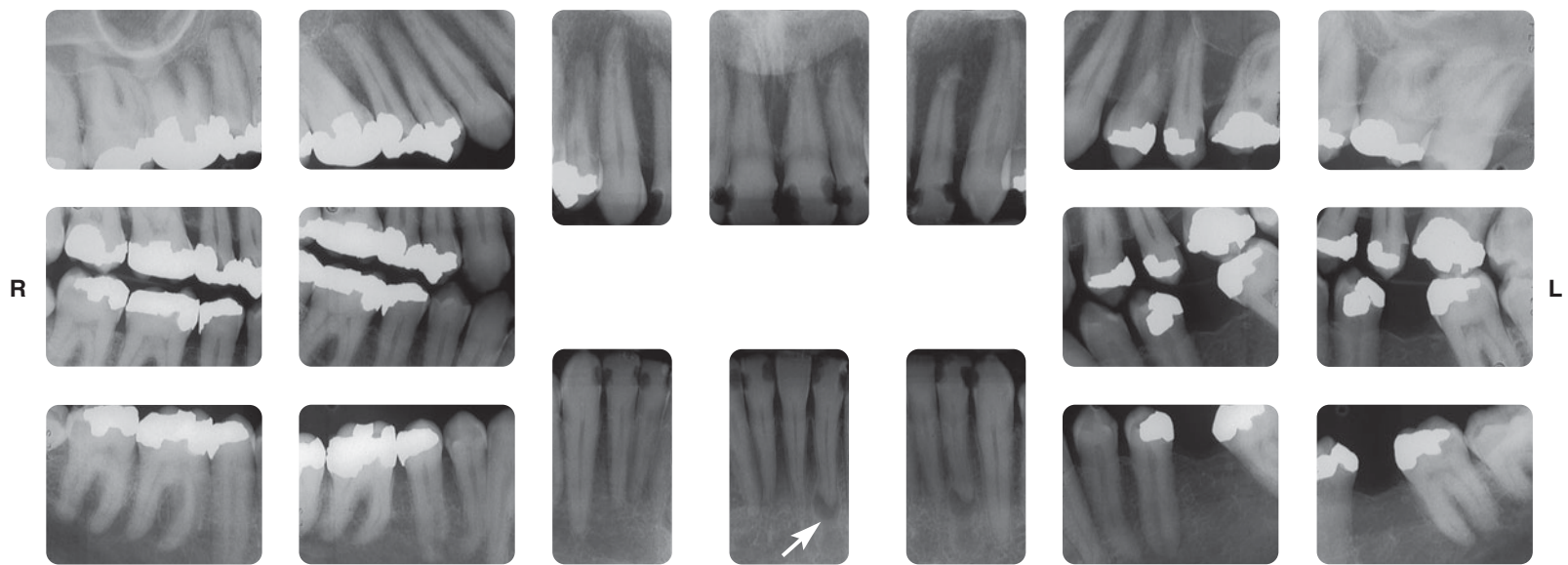
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Following restorative treatment



Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. The small diffuse red dots on this patient's palate are indicative of
 - A. Nicotine stomatitis
 - B. Hyperkeratosis
 - C. Pyogenic granuloma
 - D. Kaposi's sarcoma
 - E. Trauma from hot food
2. The deeper red tissue on the facial aspect of the mandibular anterior region (arrow) is called
 - A. Free gingiva
 - B. Attached gingiva
 - C. Masticatory mucosa
 - D. Alveolar mucosa
 - E. Junctional epithelium

Competency Level Questions

3. What dental material was used to treat the caries observed in this patient's anterior teeth following restorative treatment?
 - A. Glass ionomer
 - B. Acrylic resin
 - C. Porcelain bonding
 - D. Dental ceramic
 - E. Multipurpose composite
4. Which of the following contributes to this patient's increased risk for oral cancer?
 - A. Use of multiple antacids
 - B. Alcohol use and smoking
 - C. Xerostomia conditions
 - D. High pulse and respiration rates
 - E. Rampant caries with abscesses
5. This patient exhibits each of the following that may indicate heavy alcohol use and alcohol withdrawal syndrome EXCEPT one. Which one is the EXCEPTION?
 - A. Hand tremors
 - B. Rapid pulse
 - C. Xerostomia
 - D. Craving for antacids
 - E. Swollen glands
6. Painless, benign, bilateral parotid swellings frequently accompany chronic alcohol use. Reduced salivary output has allowed this patient's dental caries to spread between adjacent teeth.
 - A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true and related.
 - D. Both statements are true, but not related.
 - E. Both statements are false.

7. The reddening of the tip of this patient's tongue and the burning sensation is most likely the result of
 - A. Cigarette smoking
 - B. Use of antacids
 - C. Folic acid deficiency
 - D. Excessive alcohol intake
 - E. Geographic tongue

OBTAINING AND INTERPRETING RADIOGRAPHS

Competency Level Questions

8. The radiolucency observed at the apex of the mandibular left lateral incisor (arrow) is most likely
 - A. A periapical abscess
 - B. Condensing osteitis
 - C. A residual cyst
 - D. The lingual foramen
 - E. The mental foramen
9. From the following list select the three teeth that do NOT exhibit caries at the initial appointment.
 - A. Maxillary right canine
 - B. Maxillary right lateral incisor
 - C. Maxillary right central incisor
 - D. Maxillary left central incisor
 - E. Maxillary left lateral incisor
 - F. Maxillary left canine
 - G. Mandibular left lateral incisor
 - H. Mandibular left central incisor

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

10. A nonalcohol preprocedural rinse is indicated *because* of this patient's alcohol use pattern.
 - A. The statement is true, the reason is false.
 - B. The statement is false, the reason is true.
 - C. Both the statement and reason are true and related.
 - D. Both the statement and reason are true, but not related.
 - E. Both the statements are false.
11. Which of the following can be added to this patient's diet to address his vitamin deficiency related to his burning tongue symptom?
 - A. Sunlight exposure
 - B. Liver meats
 - C. Green vegetables
 - D. Multiple vitamins
 - E. Folate supplements

Competency Level Questions

12. Each of the following is a potential barrier to care planning for this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Limited finances
 - B. Ability to keep appointments and follow through with treatment
 - C. Aerosols and allergens present in the facility
 - D. Liver impairment and bleeding potential
 - E. Emotional stability during appointments

13. Which of the following is the leading cause of this patient's multiple carious lesions?
 - A. Alcohol consumption
 - B. Xerostomia
 - C. Lack of professional care
 - D. Tobacco use
 - E. Poor oral self-care
14. Which of the following possible medical emergencies should be considered when treating this patient?
 - A. Alcohol withdrawal syndrome
 - B. Airway obstruction
 - C. Adrenal crisis
 - D. Anaphylaxis
 - E. Asthma
15. Which of the following is the most likely reason this patient has difficulty keeping his scheduled dental hygiene appointments?
 - A. Lack of knowledge regarding the importance of oral health
 - B. Embarrassment about the condition of his smile
 - C. Negative dental experiences as a child
 - D. Preoccupation with drinking
 - E. Fear of being in pain

PERFORMING PERIODONTAL PROCEDURES

Basic Level Question

16. When scaling the maxillary left posterior buccal aspects, the dental hygienist should refrain from fulcruming
 - A. In the maxillary left canine/premolar area
 - B. With the palm of the hand on the patient's chin
 - C. On the maxillary left incisors
 - D. With the ring finger resting on the index finger of the nondominate hand

Competency Level Question

17. Following the preliminary phase of periodontal procedure sequencing where periapical emergencies are treated, this patient will enter which of the following treatment phases?
 - A. Phase I Nonsurgical Initial Therapy
 - B. Phase II Surgical and Corrective Therapy
 - C. Phase III Restorative Care
 - D. Phase IV Maintenance Therapy

USING PREVENTIVE AGENTS

Basic Level Question

18. Which of the following self-care agents would be the best recommendation for this patient?
 - A. Peridex™ (chlorhexidine)
 - B. Viadent® (sanguinarine)
 - C. Original Listerine (essential oils)
 - D. Scope® Original Mint (cetylpyridinium chloride)
 - E. Colgate Gel-Kam® (stannous fluoride)

Competency Level Question

19. Which of the following should be recommended for this patient?
 - A. Tartar control dentifrice
 - B. Fluoride varnish
 - C. Sealants
 - D. Locally delivered antimicrobial therapy
 - E. Antifungal palliative care for the tongue

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Question

20. If stains are present on this patient's new anterior restorations at the next maintenance appointment, they can be removed with a(n)
- Ultrasonic scaler at high power
 - Sonic scaler at low power
 - Rubber cup and polishing paste for composite material
 - Toothbrush and tartar control dentifrice
 - Air polisher and sodium bicarbonate

Competency Level Questions

21. Which of the following should NOT be recommended for this patient?
- Fluoride supplementation
 - Reduced alcohol consumption
 - Tobacco cessation program
 - Tooth-whitening procedures
 - Nutritional counseling
22. Which of the following should be this patient's first referral?
- Physician
 - Dietician
 - Endodontist
 - Alcoholism recovery group
 - Smoking cessation classes

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

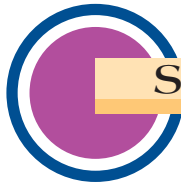
Basic Level Question

23. Because alcohol use can affect oral conditions and impact oral hygiene treatment, this patient's health history should be followed up with each of the following questions EXCEPT one. Which one is the EXCEPTION?
- "When was your last drink?"
 - "How often do you drink?"
 - "How much do you drink?"
 - "What types of alcohol do you consume?"
 - "What is your pattern of alcohol consumption?"

Competency Level Questions

24. Which of the following is the most likely reason this patient did not have his anterior teeth restored with porcelain veneer crowns or full porcelain-fused-to-metal crowns?
- The dentist and oral health care team knew that the patient could not afford crowns, so they did not waste time telling him about this treatment option.
 - The patient was willing to forego the best dental treatment (crowns) to use his financial resources on some other nondental needs.
 - Because this patient is at risk for keeping appointments, the dental hygienist recommended that he not put himself through the process of multiple appointments for fabricating the crowns.
 - Composite restorative dental materials currently on the market make this the better choice over crowns for these carious anterior teeth.
 - This patient is not capable of understanding the need for comprehensive restoration of these badly decayed teeth.

25. Although the patient has arrived for his dental appointment smelling of alcohol, his speech is not slurred and his gait is steady. The dental hygienist has chosen to continue with nonsurgical periodontal debridement treatment procedures. What is the basis for this decision?
- This patient should not be treated today.
 - This patient has chosen to reveal his alcohol problem.
 - The dental hygienist is covered by malpractice insurance.
 - The dental hygienist is using the right of therapeutic privilege.
 - This patient has decision-making capacity.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: alcohol and tobacco use

Evidenced by: effects on the oral cavity

Goals: *patient will demonstrate an understanding of the interrelationship of alcohol and tobacco use and oral health; patient will take steps to alter behaviors that pose a health risk*

Dental hygiene actions/interventions: *educate the patient on the risks to health of the combined use of tobacco and excessive alcohol; using a handheld mirror, show the patient how to perform a self-examination of the oral cavity for the effects of smoking (stains, periodontal disease) and excessive alcohol use (swollen parotid glands, condition of the tongue, dry mouth conditions); teach the patient how to perform a self-screening for oral cancer; communicate that resources are available should he decide to moderate unhealthy behavior; provide resources as requested; encourage the patient to make and keep appointments for dental treatment and regular dental hygiene care*

Deficit identified in wholesome facial image

Due to: self-consciousness of appearance; dissatisfaction with smile

Evidenced by: severe rampant caries of anterior teeth; lack of regular dental care

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: xerostomia

Evidenced by: oral conditions, burning tongue, and parotid gland enlargement

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in biologically sound and functional dentition

Due to: lack of professional oral care

Evidenced by: multiple dental caries and defective restorations

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

In addition to physician recommended supplements, for this patient (P), will daily consumption of a breakfast cereal fortified with folic acid (such as Total® Whole Grain) (I) as compared with a nutrition shake fortified with folate (such as Ensure® Nutrition Shake) (C) better assist with eliminating his burning tongue sensation (O)?



MAKING ETHICAL DECISIONS

This patient is satisfied with the appearance of, and the cost for, his restored maxillary anterior teeth. He expresses to you that he is upset that the dentist he sought a consultation with at another practice recommended full crowns and did not give him this option for composite restorations.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. **Individuals who smoke and use excessive amounts of alcohol have a significantly increased risk of oral cancer. Determine how you would approach this patient regarding moderation of alcohol use and smoking cessation. Explain how counseling can contribute to his knowledge, attitudes, and practices regarding his unhealthy behavior.**
2. **Alcohol abuse and alcoholism often result in poor nutrition. Write a detailed treatment plan to assess this patient's diet and provide nutritional counseling. Include a description of the tools you will use to help provide an accurate survey of his eating habits.**
3. **In a small-group activity, brainstorm several possible reasons why this patient has difficulty making and keeping dental and dental hygiene appointments. Use this list as a basis for role-playing how the dental hygienist might address each of the reasons.**

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CHAPTER 14

CASE L Thomas Small



SITUATION

Thomas Small has presented for his dental hygiene appointment today with an eager seriousness. Although his mother is his legal guardian, his social services case worker has brought him in today. She explains that Thomas likes to have all procedures explained in detail before agreeing to treatment.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Identify variations of normal head and neck anatomy.
 - B. Recognize factors that contribute to the creation of nonpathologic oral deviations from normal.
 - C. Determine the etiology of gingival inflammation.
 - D. Identify the risk associated with opercula.
2. **Obtain and interpret radiographs.**
 - A. Identify normal radiographic anatomy.
 - B. Recognize radiographic artifacts.
 - C. Recognize anatomic anomalies observed in radiographs.
3. **Plan and manage dental hygiene care.**
 - A. Prepare appropriately for a possible medical emergency during dental hygiene treatment.
 - B. Execute appropriate response to a medical emergency during dental hygiene treatment.
 - C. Select appropriate treatment regimens for the patient with a seizure disorder.
 - D. Recommend oral self-care strategies for the patient with an intellectual disability.
 - E. Perform dental hygiene treatment for the patient with a seizure disorder.
4. **Perform periodontal procedures.**
 - A. Utilize standard indices for assessing periodontal health.
 - B. Identify microorganisms present in plaque biofilm.
 - C. Select the appropriate calculus removal method.
 - D. Select the appropriate instrument for removing calculus.
 - E. Determine possible outcomes of oral health care instruction and nonsurgical periodontal therapy.
5. **Use preventive agents.**
 - A. Select the appropriate fluoride treatment based on patient assessment data.
6. **Provide supportive treatment services.**
 - A. Determine contraindications to treatment based on gingival conditions.
 - B. Determine when medical emergency assistance should be initiated in response to an epileptic seizure.
7. **Demonstrate professional responsibility.**
 - A. Identify professional obligation in determining the need for information regarding a patient's history of seizures.
 - B. Classify mental retardation adaptive functioning.
 - C. Identify the person legally responsible for providing informed consent for a patient under the care of another.
 - D. Determine the competency of the patient to give informed consent.

SPECIAL NEEDS PATIENT—Thomas Small
PATIENT HISTORY SYNOPSIS

Age 32 years
Gender male
Height 5' 7"
Weight 185 lbs.

VITAL SIGNS

Blood Pressure 135/89 mm Hg
Pulse Rate 88 bpm
Respiration 14 rpm

1. Under care of physician

Yes

No



Condition: seizure disorder

2. Hospitalized within the last 5 years

Yes

No



Reason: _____

3. Has or had the following conditions

epilepsy

4. Current medications

carbamazepine (Tegretol®)—anticonvulsant

phenytoin (Dilantin®)—anticonvulsant

topiramate (Topamax®)—anticonvulsant

5. Smokes or uses tobacco products

Yes

No



6. Is pregnant

Yes

No

N/A



MEDICAL HISTORY

Intellectual disability, specific subtype being mental retardation. Epileptic seizures respond well to current medications and appear to be controlled. Last episode was eight months ago; appear to be precipitated by monotonous sounds, music, and loud noises.

DENTAL HISTORY

Sporadic professional oral healthcare. Last maintenance appointment was 18 months ago. Does not know if his toothpaste contains fluoride.

SOCIAL HISTORY

Patient enjoys his job at the supermarket, and is especially proud that he is learning where items are located in each aisle. He lives in an independent living group home.

CHIEF COMPLAINT

Expresses frustration when asked about his oral hygiene practices. Explains that he hasn't been brushing, because he thinks one of the other men living at his group home keeps stealing his toothbrush.

CURRENT ORAL HYGIENE STATUS

*Spontaneous marginal bleeding.
Generalized moderate subgingival calculus.*

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Partially erupted mandibular third molars with opercula. Lips parted in occlusion. Evidence of mouth breathing. Licks and sucks on lips excessively.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	544	445	324	314	414	323	323	436	634	434	433	333	333	334	444	444
Probe 1																
F																
P																
Probe 1	444	444	323	323	312	313	212	212	212	212	212	213	313	313	315	544
Probe 2																
R																
Probe 2																
Probe 1																
L																
F																
Probe 1																
Probe 2																
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Clinically visible carious lesion

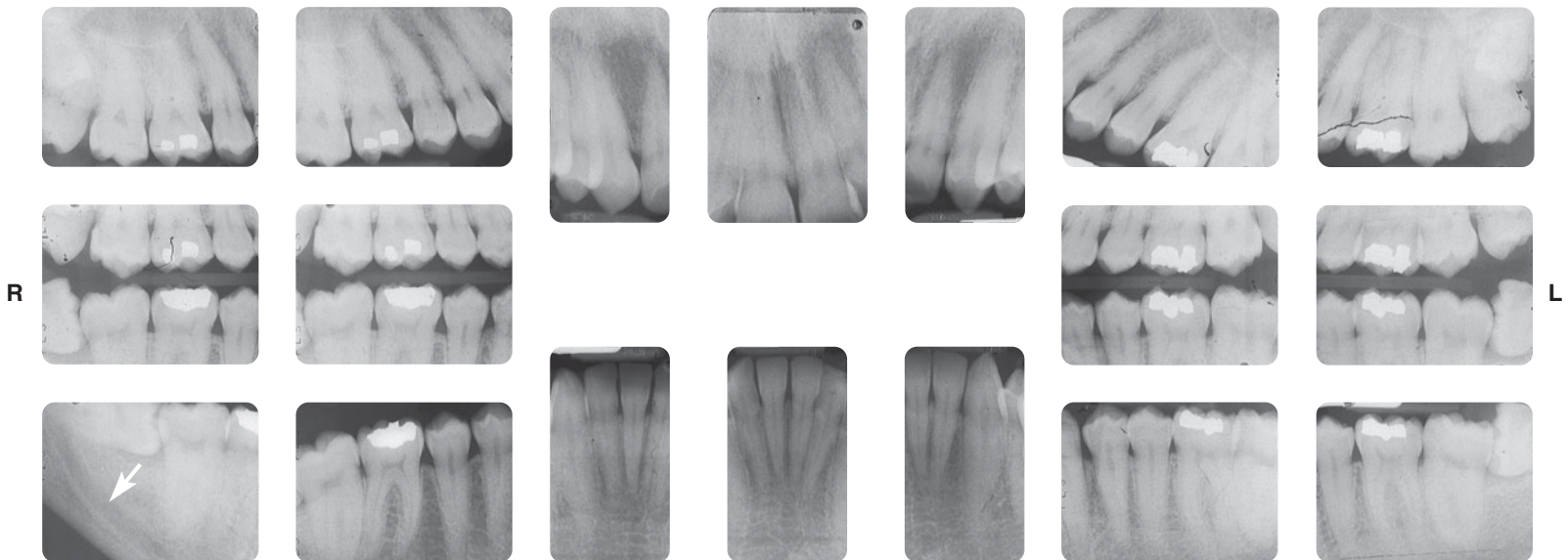
Clinically missing tooth

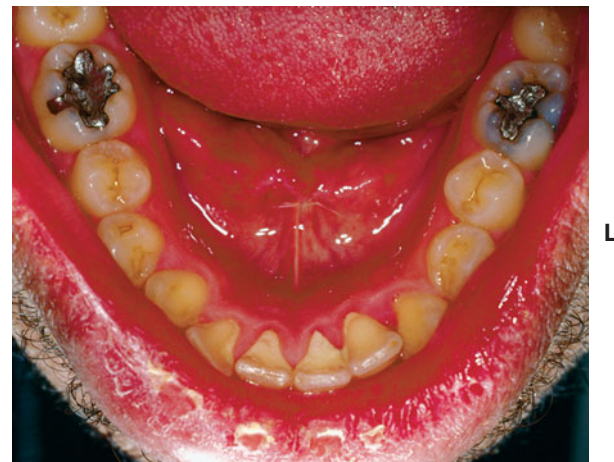
Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following is the most likely assessment of the hard, nodule-like finding observed on the facial gingiva, adjacent to the maxillary right second premolar (arrow)?
 - A. Papilloma
 - B. Neurofibroma
 - C. Exostosis
 - D. Hyperkeratosis
 - E. Lipoma

Competency Level Questions

2. Each of the following may be contributing to this patient's excessively dry lips EXCEPT one. Which one is the EXCEPTION?
 - A. His medications
 - B. Mouth breathing
 - C. Evaporation of excessive moisture on the lips
 - D. Seizure disorder
 - E. Habit of sucking on the lips
3. Which of the following best applies to the enlarged gingiva in the anterior region?
 - A. Linear gingival erythema
 - B. Phenytoin-influenced gingival enlargement
 - C. Hereditary gingival fibromatosis
 - D. Necrotizing ulcerative gingivitis
 - E. Acute herpetic gingivostomatitis
4. The mandibular third molars are at risk for developing which of the following?
 - A. Pericoronitis
 - B. Osteomyelitis
 - C. Melanosis
 - D. Mucocele
 - E. Taurodontism

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

5. Which of the following is the most likely interpretation of the long, tubelike radiolucency (arrow) observed in the mandibular right molar periapical radiograph?
 - A. Compound fracture
 - B. Nutrient canal
 - C. Oblique ridge
 - D. Mylohyoid line
 - E. Mandibular canal
6. Which of the following is the most likely assessment of the black line observed on the maxillary left molar periapical radiograph?
 - A. Lint that stuck to the film while wet
 - B. Static electricity that created an artifact
 - C. Roller mark from the automatic processor
 - D. Accidental chemical splash prior to processing
 - E. Fingernail scratching the film emulsion

Competency Level Question

7. Which of the following is the most likely interpretation of the anomalies observed in the maxillary molar periapical radiographs?
 - A. Bony exostoses
 - B. Dens invaginatus
 - C. Enamel pearls
 - D. Supernumerary teeth
 - E. Impacted third molars

PLANNING AND MANAGING DENTAL HYGIENE CARE*Basic Level Questions*

8. Each of the following should be considered when treating this patient, EXCEPT one. Which one is the EXCEPTION?
 - A. Include a mouth prop in the treatment armamentarium.
 - B. Schedule appointments within the first few hours of daily medications.
 - C. Ask the patient to report aura sensation immediately upon sensing.
 - D. Ready life support oxygen for respiratory support.
 - E. Prepare to administer a bronchodilator.
9. If this patient has a seizure in the dental chair, the primary task of management must be to protect him from injury to himself.

At the start of a seizure, an attempt should be made to move this patient out of the treatment chair and onto the floor.

- A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true and related.
 - D. Both statements are true but not related.
 - E. Both statements are false.
10. Each of the following should be executed if this patient begins to exhibit uncontrolled muscle motor movements EXCEPT one. Which one is the EXCEPTION?
 - A. Monitor vital signs.
 - B. Provide aggressive restraints.
 - C. Place in a supine position.
 - D. Remove instruments from the area.
 - E. Maintain an open airway.

Competency Level Questions

11. Which of the following treatment regimens may pose the greatest risk for potentially exacerbating this patient's risk of a seizure?
 - A. Coronal polishing
 - B. Subgingival irrigation
 - C. Ultrasonic scaling
 - D. Root planing
 - E. Toothbrush deplaquing
12. Which of the following oral hygiene care strategies should be implemented first to increase this patient's motivation to improve his oral self-care habits?
 - A. Disclose and show plaque accumulation using a hand mirror.
 - B. Provide a brochure with large pictures demonstrating brushing technique.
 - C. Give him a new toothbrush with his name on it.
 - D. Include the social services case worker in oral self-care instructions.
 - E. Use a digital intraoral camera that images the oral cavity on a monitor.

13. Which of the following should be considered before subgingival debridement?
 - A. Premedicate with appropriate antibiotics.
 - B. Determine pretreatment bleeding time.
 - C. Offer acetaminophen to manage discomfort.
 - D. Rinse with an alcohol-containing mouth rinse.
 - E. Irrigate pockets with saline.

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

14. According to the Plaque Index of Silness and L  e, which of the following scores would be applied to this patient's maxillary anterior teeth?
 - A. 0
 - B. 1
 - C. 2
 - D. 3
15. Which of the following statements regarding the bacteria present in the plaque biofilm adjacent to the maxillary left lateral incisor and maxillary left canine is most accurate?
 - A. Primarily gram-positive cocci and epithelial cells
 - B. Increased numbers of gram-positive filamentous forms and short rods
 - C. Mixed flora of rods, filamentous forms, and fusobacteria
 - D. Gram-negative and anaerobic organisms that have begun to appear
 - E. Prevalence of vibrios and spirochetes
16. Which of the following is indicated for the brown spot on the maxillary right first premolar?
 - A. Subgingivally irrigating with an antimicrobial agent
 - B. Polishing with a medium-grit abrasive
 - C. Toothbrushing with a fluoridated dentifrice
 - D. Scaling with a universal curet
 - E. Burnishing with fluoride
17. Which of the following instruments would be the best choice to remove the supragingival calculus observed on the lingual surfaces of this patient's mandibular anterior teeth?
 - A. Sickle scaler
 - B. File scaler
 - C. Hoe scaler
 - D. Chisel scaler

Competency Level Question

18. Following debridement and instruction in oral self-care, what reduction in probing depths can be expected at the six-week reevaluation appointment?
 - A. 0 to 1 mm
 - B. 2 to 3 mm
 - C. 4 to 5 mm
 - D. Increased probing depths likely

USING PREVENTIVE AGENTS

Competency Level Question

19. Which of the following self-applied fluorides would be the best recommendation for this patient?
 - A. Low-potency sodium fluoride mouth rinse
 - B. Acidulated phosphate fluoride custom tray application
 - C. Stannous fluoride brush-on gel
 - D. Extra-strength sodium monofluorophate dentifrice
 - E. Dietary sodium fluoride tablet supplement

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Questions

20. Which of the following will most likely be postponed until a later appointment?
 - A. Fluoride varnish
 - B. Polishing
 - C. Root planing
 - D. Scaling
 - E. Probing
21. Should a seizure occur while treating this patient, emergency medical assistance must be summoned if the seizure lasts longer than
 - A. 5 minutes
 - B. 10 minutes
 - C. 15 minutes
 - D. 20 minutes
 - E. 30 minutes

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Questions

22. Each of the following must be identified before treating this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Type of seizure
 - B. Frequency of seizure episodes
 - C. Degree of control
 - D. Known precipitating factors
 - E. Change in mental status
23. This patient's mental retardation is considered
 - A. Mild
 - B. Moderate
 - C. Severe
 - D. Profound
24. Who must sign the informed consent document prior to treating this patient?
 - A. The patient
 - B. His case worker
 - C. His mother
 - D. The group home director
 - E. The dentist

Competency Level Question

25. With regard to the ability to give informed consent for dental hygiene treatment, this patient is
 - A. Legally competent with decision-making capacity
 - B. Legally competent with impaired decision-making capacity
 - C. Legally incompetent with decision-making capacity
 - D. Legally incompetent with impaired or no decision-making capacity



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him and his caregivers identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: potential for epileptic seizure during treatment

Evidenced by: medical history

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: gingival inflammation

Evidenced by: spontaneous bleeding

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: intellectual disability

Evidenced by: not taking alternative action to compensate for missing toothbrush

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: inadequate toothbrushing

Evidenced by: lack of a toothbrush

Goals: *assist patient with maintaining the self-care tools he needs to improve his oral health; increase toothbrushing frequency*

Dental hygiene actions/interventions: *provide the patient with a new toothbrush; allow the patient to choose his own brush from a selection of colors and types appropriate for his needs; personalize the brush with his name; assist the patient with determining how best to protect his brush and keep it safe so that he can use it often*



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

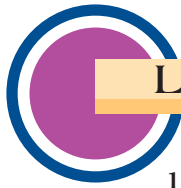
For this patient (P), will a probiotic lozenge (such as GUM PerioBalance®) (I) as compared with an antioxidant gel (such as Sensodyne Multi Action Foaming Gel With Iso-active™ Technology) (C) better assist with improving oral health conditions (O)?



MAKING ETHICAL DECISIONS

Explaining each step in the assessment and instrumentation procedures to Thomas has taken up a significant amount of the allotted appointment time. The practice manager informs you that the social services case worker needs to get Thomas back to the group home so that he can get ready to report to his job on time. You explain that you have not finished a thorough debridement and polishing. The practice manager suggests that you stop debridement and do a quick polishing; after all, Thomas will not know the difference.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Consider a case in which a legally competent person's decision-making skills are questionable. Discuss how you would determine the following: whether the patient shows evidence of understanding the proposed treatment; whether the patient understands the risks and benefits of the treatment and the consequences of non-treatment; and whether the patient shows evidence of rationality in weighing the treatment options presented. What role would the patient's immediate family, friends, or others play in this scenario? Discuss how you would approach this situation.
2. Develop a seizure disorder supplement to a standard medical history with questions pertaining to seizures that the dental hygiene professional can use before treating the patient with a seizure disorder.
3. Develop a medical emergency sheet describing the steps the oral health care team would take to manage a seizure that occurred during treatment. Role-play an emergency scenario.
4. Role-play the dental hygienist meeting this patient for the first time. Demonstrate the establishment of a professional relationship. Use strategies that develop a rapport; gain patient confidence and interest; explain procedures and answer patient questions; and obtain legal consent for treatment.

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CHAPTER 15

CASE M Nancy Foster



SITUATION

Nancy Foster is a senior in college and lives at home with her parents. She works part time as a server in a restaurant. Nancy is outgoing and has plans to further her education by attending graduate school. Diagnosed with diabetes at age 15, keeping her diabetes under control is a constant concern. She recently began using an insulin pump. She has presented today for her regular six-month examination and prophylaxis.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Identify the classifications of diabetes using current medical terminology.
 - B. Determine the etiology of diabetes based on patient health history information.
 - C. Classify fluorosis.
 - D. Recognize diabetes effects on the oral cavity.
 - E. Relate pathophysiology of diabetes with clinical symptoms.
2. **Obtain and interpret radiographs.**
 - A. Identify common radiographic artifacts.
 - B. Identify the cause of errors that diminish the quality of radiographs.
 - C. Apply the appropriate corrective action to radiographic error.
 - D. Identify normal radiographic landmarks.
 - E. Use radiographs to classify carious lesions according to G. V. Black's method of classification.
 - F. Interpret deviations from normal radiographic anatomy.
3. **Plan and manage dental hygiene care.**
 - A. Recognize and manage a medical emergency during dental hygiene treatment.
4. **Perform periodontal procedures.**
 - A. Classify the patient's periodontal condition using the American Academy of Periodontology classification system.
 - B. Identify the causes of change in gingival tissues.
 - C. Assess outcomes of nonsurgical periodontal therapy.
 - D. Describe the wound-healing process.
 - E. Appropriately recommend recare appointment time intervals.
5. **Use preventive agents.**
 - A. Select appropriate teeth for pit and fissure sealant application.
 - B. Select preventive agents based on patient needs.
6. **Provide supportive treatment services.**
 - A. Recognize conditions that decrease the effectiveness of tooth whitening.
7. **Demonstrate professional responsibility.**
 - A. Use health history follow-up questions to open communication with the patient for the purpose of avoiding the occurrence of a medical emergency during treatment.

MEDICALLY COMPROMISED PATIENT—Nancy Foster
PATIENT HISTORY SYNOPSIS

Age 21 years
 Gender female
 Height 5' 3"
 Weight 106 lbs.

VITAL SIGNS

Blood Pressure 90/60 mm Hg
 Pulse Rate 96 bpm
 Respiration 14 rpm

1. Under care of physician

Yes
☒No
☐Condition: glycated hemoglobin test
every 3 months

2. Hospitalized within the last 5 years

Yes
☐No
☒

Reason: _____

3. Has or had the following conditions
diabetes mellitus

4. Current medications

insulin regular (Humulin®R)—insulin
neutral protamine hagedorn (NPH)
(Humulin®N)—insulin

5. Smokes or uses tobacco products

Yes
☐No
☒

6. Is pregnant

Yes
☐No
☒N/A
☐**MEDICAL HISTORY**

Has experienced a recent weight loss of seven lbs.

DENTAL HISTORY

Receives regular dental hygiene care at six-month intervals; orthodontic treatment in her early teens. States that she grew up in a region with heavily fluoridated water so she has chosen not to use a fluoride toothpaste.

SOCIAL HISTORY

A busy full-time college student with a part-time job, patient admits to less than ideal eating habits. Has a habit of biting her fingernails.

CHIEF COMPLAINT

Recently noticed that her gums look different and that they are sore and bleed easily. Interested in tooth whitening.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	213	313	313	X	212	212	111	111	111	111	X	212	212	212	X
Probe 1	X	324	524	323	X	322	212	212	212	212	223	X	323	323	323	X
F																
P																
Probe 1	X	323	523	323	X	322	212	212	212	212	212	X	325	323	323	X
Probe 2	X	313	312	212	X	211	111	111	111	111	111	X	212	212	212	X
R																
Probe 2	X	313	413	313	X	212	111	111	111	111	111	X	212	323	323	X
Probe 1	X	334	534	323	X	323	212	212	111	111	212	X	323	434	433	X
L																
F																
Probe 1	X	323	323	212	X	212	211	111	111	111	112	X	212	313	323	X
Probe 2	X	313	312	212	X	212	111	111	111	111	111	X	112	313	323	X
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

CURRENT ORAL HYGIENE STATUS

Slight, localized calculus in the mandibular anterior region. Slight, generalized plaque biofilm.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Moderate, generalized bleeding upon probing. Moderate xerostomia.

Clinically visible carious lesion

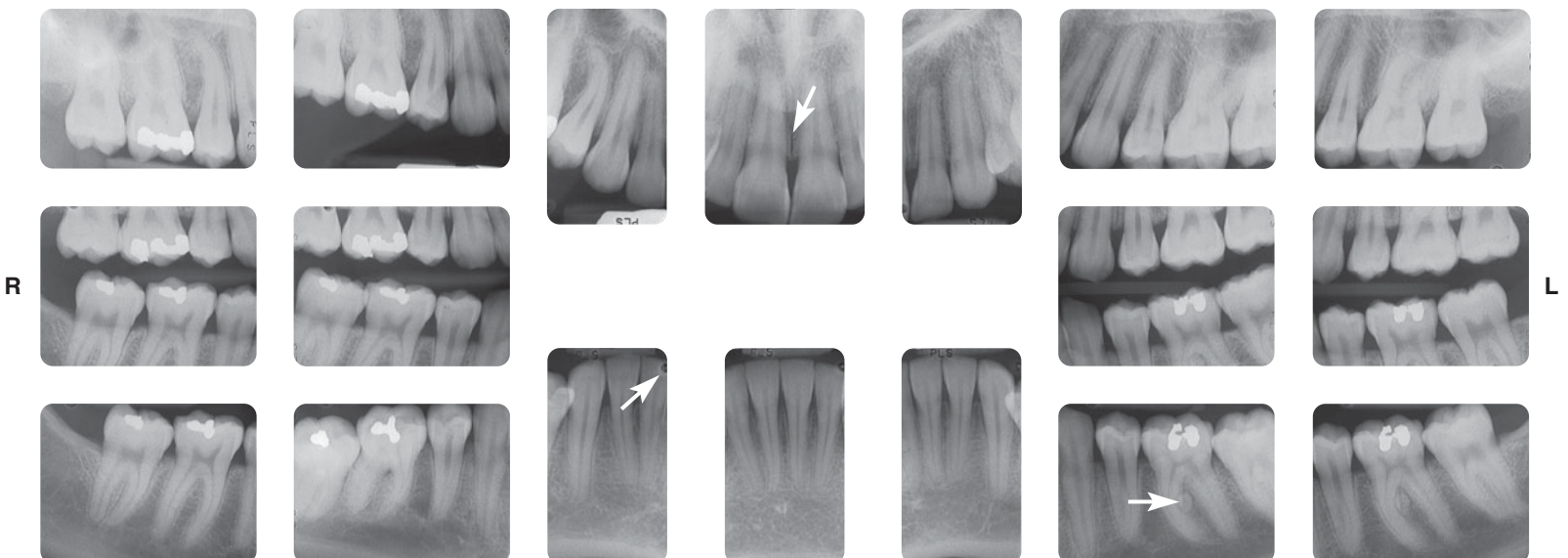
Clinically missing tooth

Furcation

"Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





6-week reevaluation appointment



Right side





CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Based on the current American Diabetes Association classification system, this patient has which of the following?
 - A. Type 1 diabetes
 - B. Type 2 diabetes
 - C. Gestational diabetes
 - D. Drug-induced diabetes
2. Which of the following was the most likely etiology in the development of this patient's diabetes?
 - A. Insulin resistance
 - B. Inadequate insulin secretion
 - C. Autoimmune destruction of beta cells
 - D. Poor weight management
 - E. Sucrose consumption
3. Based on the Tooth Surface Index of Fluorosis (TSIF) classification system, what is this patient's numerical score?
 - A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4

Competency Level Questions

4. What is the most likely cause of this patient's xerostomia?
 - A. Periodontal disease
 - B. Medication use
 - C. Renal function
 - D. Frequent meals
 - E. Oral hygiene
5. Which of the following would NOT be related to poor glycemic control?
 - A. Dental caries
 - B. Weight loss
 - C. Increased pulse rate
 - D. Congenitally missing teeth
 - E. Low blood pressure
6. This patient's medical condition has the potential to increase her risk for each of the following oral manifestations EXCEPT one. Which one is the EXCEPTION?
 - A. Gingivitis
 - B. Periodontitis
 - C. Burning mouth syndrome
 - D. Oral mucosal diseases
 - E. Dentin hypersensitivity

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

7. Which of the following is the most likely interpretation of the round radiolucency at the incisal edge of the mandibular right central incisor observed in the mandibular right lateral canine periapical radiograph (arrow)?
 - A. Film identification dot
 - B. Composite restoration
 - C. Attrition
 - D. Calculus deposit
 - E. Caries
8. Which of the following has rendered the maxillary right premolar periapical radiograph undiagnostic?
 - A. Interproximal spaces overlapped
 - B. Root apices not visible
 - C. Conecutting present
 - D. Herringbone effect
 - E. Image receptor holder imaged

Competency Level Questions

9. What corrective action is required when retaking the undiagnostic maxillary right premolar periapical radiograph?
 - A. Decrease the vertical angulation.
 - B. Shift the horizontal angulation to the mesial.
 - C. Ensure that the patient bites down on the image receptor holder.
 - D. Reverse the image receptor when placing into the oral cavity.
 - E. Center the image receptor within the x-ray beam.
10. Which of the following is the most likely interpretation of the radiolucent vertical line between the maxillary central incisors (arrow)?
 - A. Nasal septum
 - B. Nutrient canal
 - C. Vertical bone loss
 - D. Palatal fracture
 - E. Midpalatine suture
11. The radiographs reveal which G. V. Black's classification of caries on the maxillary left first molar?
 - A. II
 - B. III
 - C. IV
 - D. V
 - E. VI
12. Which of the following is the most likely interpretation of the radiopaque anomaly near the roots of the mandibular left first molar (arrow)?
 - A. Microdont
 - B. Mesiodens
 - C. Secondary dentin
 - D. Enamel pearl
 - E. Pulp stone
13. Which of the following teeth presents with root dilaceration?
 - A. Maxillary right second premolar
 - B. Maxillary left first molar
 - C. Mandibular left canine
 - D. Mandibular right central incisor
 - E. Mandibular right second molar

PLANNING AND MANAGING DENTAL HYGIENE CARE*Basic Level Questions*

14. Which of the following would be considered the most likely medical emergency that may occur with this patient during treatment?
 - A. Hyperglycemia
 - B. Hypoglycemia
 - C. Diabetic coma
 - D. Ketoacidosis
15. Each of the following indicates that this patient is experiencing a medical emergency EXCEPT one. Which one is the EXCEPTION?
 - A. Excessive perspiration
 - B. Palpitations
 - C. Slight paresthesia
 - D. Increased anxiety
 - E. Argumentative mood

Competency Level Question

16. Which of the following will assist in managing a possible emergency medical situation regarding this patient?
 - A. Premedicate with oral antibiotics.
 - B. Place ammonia capsule on the bracket table for ready use.
 - C. Request that the patient disconnect the insulin pump during treatment.
 - D. Use a semisupine chair position.
 - E. Have a glucose tablet or source of oral sugar (e.g., orange juice) available.

PERFORMING PERIODONTAL PROCEDURES*Basic Level Question*

17. Based on the American Academy of Periodontology classification system, what is this patient's periodontal classification?
 - A. Gingivitis associated with dental plaque only
 - B. Nonplaque-induced gingival disease
 - C. Gingival disease modified by medications
 - D. Gingival disease modified by systemic factors
 - E. Gingival manifestations of systemic conditions

Competency Level Questions

18. On a histologic level, each of the following is responsible for the color change of the gingiva observed at the initial appointment in the facial region of the maxillary right central incisor EXCEPT one. Which one is the EXCEPTION?
 - A. Blood flow to this area has increased.
 - B. Many dead and dying phagocytes are present.
 - C. Osteoclast activity is being stimulated by prostaglandins.
 - D. Leukocytes are invading the bacteria present at this site.
 - E. Plasma proteins are leaking from the blood vessels in the tissue.
19. What is the reason for the change in appearance of the facial gingiva in the region of the mandibular right central incisor at the six-week reevaluation appointment?
 - A. Weight gain of lost pounds
 - B. Cessation of nail-biting habit
 - C. Change in method of insulin delivery
 - D. Initiation of use of whitening products
 - E. Periodontal debridement and improved self-care

20. Order these steps responsible for the change in appearance noted in the gingival tissue in the facial region of the mandibular right central incisor at the six-week evaluation appointment. Match each letter with its proper sequence number.

Begin with the first step.		
1. ____		A. Wound contraction by the action of myofibroblasts
2. ____		B. Synthesis of extracellular matrix (ECM) proteins and collagen deposition
3. ____		C. Inflammatory response
4. ____		D. Tissue maturation and remodeling
5. ____		E. Formation of new blood vessels (angiogenesis) and granulation tissue

21. Which of the following maintenance appointment intervals would benefit this patient?
- 1 month
 - 3 months
 - 6 months
 - 9 months
 - 12 months

USING PREVENTIVE AGENTS

Basic Level Question

22. Which of the following should be indicated for placement of a sealant?
- Maxillary right second molar
 - Maxillary right first molar
 - Maxillary left first molar
 - Mandibular left first molar
 - Mandibular right first molar

Competency Level Question

23. Which of the following would benefit this patient the most?
- End-tuft brush
 - Tooth whitening product
 - Power flosser
 - Self-applied fluoride
 - Disclosing tablets

PROVIDING SUPPORTIVE TREATMENT SERVICES

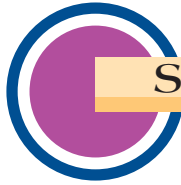
Competency Level Question

24. Which of the following can be expected to minimize tooth whitening results for this patient?
- Gingival inflammation
 - Nail-biting habit
 - Fluorosis
 - Diabetes
 - Sealants

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

25. Each of the following is a recommended health history interview question to determine the safe treatment of this patient today EXCEPT one. Which one is the EXCEPTION?
- “Did you take your usual dose of insulin today?”
 - “How often do you have insulin reactions?”
 - “What was your blood glucose level at the last test?”
 - “Have you eaten your normal meals and snacks today?”
 - “How much do you weigh?”



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: inadequate nutrition

Evidenced by: self-report

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in wholesome facial image

Due to: color of teeth

Evidenced by: request for whitening products

Goals: *assist patient with decision to use whitening product*

Dental hygiene actions/interventions: *perform a thorough exam to determine contraindications for the use of whitening products; take a whitening "history" on the patient to determine past use; determine patient satisfaction/dissatisfaction with past outcomes; determine patient expectations of future outcomes by allowing the patient to pick shades from a shade guide and then comparing shades with the patient's natural teeth; use co-discovery with the patient to determine realistic expectations; determine the patient knowledge level of products and educate the patient on product types, benefits, risks, compliance requirements, and lifestyle changes required, such as elimination of foods and beverages that stain the teeth*

Deficit identified in skin and mucous membrane integrity of the head and neck**Due to:** presence of generalized plaque**Evidenced by:** gingival inflammation and bleeding**Goals:** _____**Dental hygiene actions/interventions:** _____**Deficit identified in biologically sound and functional dentition****Due to:** xerostomia**Evidenced by:** caries**Goals:** _____**Dental hygiene actions/interventions:** _____**Deficit identified in conceptualization and problem solving****Due to:** lack of awareness of interrelationship between diabetes and oral health**Evidenced by:** focus of interest on teeth whitening instead of on signs and symptoms of gingival disease**Goals:** _____**Dental hygiene actions/interventions:** _____

ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

For this patient (P) who requests an over-the-counter teeth whitening product recommendation, will a whitening strip product (such as Crest® 3D White Whitestrips Professional Effects) (I) as compared with a mouth tray product (such as Aquafresh® White Trays) (C) provide better results (O)?



MAKING ETHICAL DECISIONS

After discovering that you used a polishing agent that contained fluoride, the patient becomes upset and reminds you that she has chosen not to use fluorides. She states that she did not give consent to have a fluoride product used.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Develop a list of healthy foods and snacks that would assist a busy college student in maintaining a healthy lifestyle.
2. Prepare a patient brochure on tooth whitening. Include information such as types of products and application methods; compliance requirements and lifestyle changes needed to ensure optimal outcomes; and contraindications and risks that will help answer patient questions regarding the whitening procedure.

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click the Enter button to access interactive assessment, sample forms, and much more.

CHAPTER 16

CASE N Brian Bartlett



SITUATION

Until a toothache motivated him to make an appointment with the dentist last week, Brian Bartlett has not had regular professional oral hygiene care in over two years. He presents today on the recommendation of his physician and confirmed by the dentist. Recently diagnosed with diabetes and secondary high blood pressure, his physician has prescribed medication, weight loss, and lifestyle changes to help get his medical conditions under control.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Determine the etiologic classification of diabetes based on patient health history information.
 - B. Classify blood pressure readings with stages of hypertension.
 - C. Identify the risks associated with an unhealthy BMI (body mass index).
 - D. Identify adverse effects of medications taken by the medically compromised patient.
 - E. Use appropriate terminology to describe gingival conditions.
 - F. Identify a temporary restoration.
 - G. Identify potential causes of recession.
 - H. Assess potential risks of recession.
2. **Obtain and interpret radiographs.**
 - A. Identify the cause of radiographic errors.
 - B. Interpret caries radiographically.
3. **Plan and manage dental hygiene care.**
 - A. Apply the appropriate technique for pain control for scaling procedures.
 - B. Recognize potential adverse effects of medications and respond appropriately to prevent occurrence of a medical emergency.
 - C. Select the appropriate anesthetic for pain control for scaling procedures.
4. **Perform periodontal procedures.**
 - A. Classify a patient's periodontal status.
 - B. Select the appropriate handheld instrument for scaling a region.
 - C. Determine gingival attachment level.
5. **Use preventive agents.**
 - A. Recommend the appropriate preventive agents based on oral assessment.
6. **Provide supportive treatment services.**
 - A. Identify reasons for essential selective polishing.
 - B. Recognize dietary recommendations for medically compromised individuals.
 - C. Recommend therapies for managing xerostomia.
7. **Demonstrate professional responsibility.**
 - A. Communicate appropriately with the medically compromised patient about the link between periodontal diseases and systemic health.
 - B. Recognize the link between periodontal diseases and diabetes.
 - C. Obtain patient's written consent to treatment.

MEDICALLY COMPROMISED PATIENT—Brian Bartlett
PATIENT HISTORY SYNOPSIS

Age 40 years
 Gender male
 Height 5' 11"
 Weight 218 lbs.

VITAL SIGNS

Blood Pressure 144/96 mm Hg
 Pulse Rate 96 bpm
 Respiration 14 rpm

1. Under care of physician

Yes
☒No
☐

Condition: monitor glycemic control
monitor blood pressure
monitor blood lipoproteins

2. Hospitalized within the last 5 years

Yes
☐No
☒

Reason: _____

3. Has or had the following conditions

diabetes mellitussecondary hypertension

4. Current medications

metformin and rosiglitazone (Avandamet®)—antidiabetic combinationirbesartan (Avapro®)—antihypertensive,angiotensin-II antagonistmetolazone (Zaroxolyn®)—thiazide-like diureticsimvastatin (Zocor®)—antihyperlipidemic

5. Smokes or uses tobacco products

Yes
☐No
☒

6. Is pregnant

Yes
☐No
☐

N/A

☒**MEDICAL HISTORY**

Current health problems have only recently been diagnosed. His physician is monitoring the efficacy of the medications he has recently started taking and his efforts at implementing dietary and lifestyle changes. He has met with a dietitian.

DENTAL HISTORY

Until a recent toothache prompted him to make an appointment with the dentist last week, he has not had professional dental hygiene care in over two years. Seems unaware of his oral condition, even though his physician has prescribed periodontal assessment and treatment in conjunction with other methods of restoring his overall health. Uses a toothpaste that does not contain fluoride.

SOCIAL HISTORY

Lives with his girlfriend and her two children in the house he owns. Works as a computer technician in an electronics store and considers himself a devoted gamer. His goal is to produce his own line of video games.

CHIEF COMPLAINT

Had a temporary restoration placed last week and has scheduled today's appointment as directed by the dentist and his physician. Appears to have a low tolerance to probing subgingivally and once scaling started, he requested local anesthesia.

CURRENT ORAL HYGIENE STATUS

Moderate, generalized calculus. Heavy, generalized plaque biofilm.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Moderate, generalized bleeding upon probing. Edematous, spongy, sensitive gingival tissues. Right mandibular central incisor exhibits Class I mobility.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2	X	324	525	522	224	225	524	323	323	423	325	534	536	735	575	X
Probe 1	X	324	525	522	224	225	524	323	323	423	325	534	536	735	575	X
F																
P																
Probe 1	X	428	755	665	525	424	423	323	222	522	223	445	525	537	545	X
Probe 2	X	428	755	665	525	424	423	323	222	522	223	445	525	537	545	X
R																
Probe 2	X	766	635	524	323	323	116	222	312	223	112	213	324	536	656	X
Probe 1	X	766	635	524	323	323	116	222	312	223	112	213	324	536	656	X
L																
F																
Probe 1	X	644	425	313	212	223	333	322	222	225	211	213	324	424	535	X
Probe 2	X	644	425	313	212	223	333	322	222	225	211	213	324	424	535	X
		32	31	30	29	28	27	26	25	24	23	22	21	20	19	18

 Clinically visible carious lesion

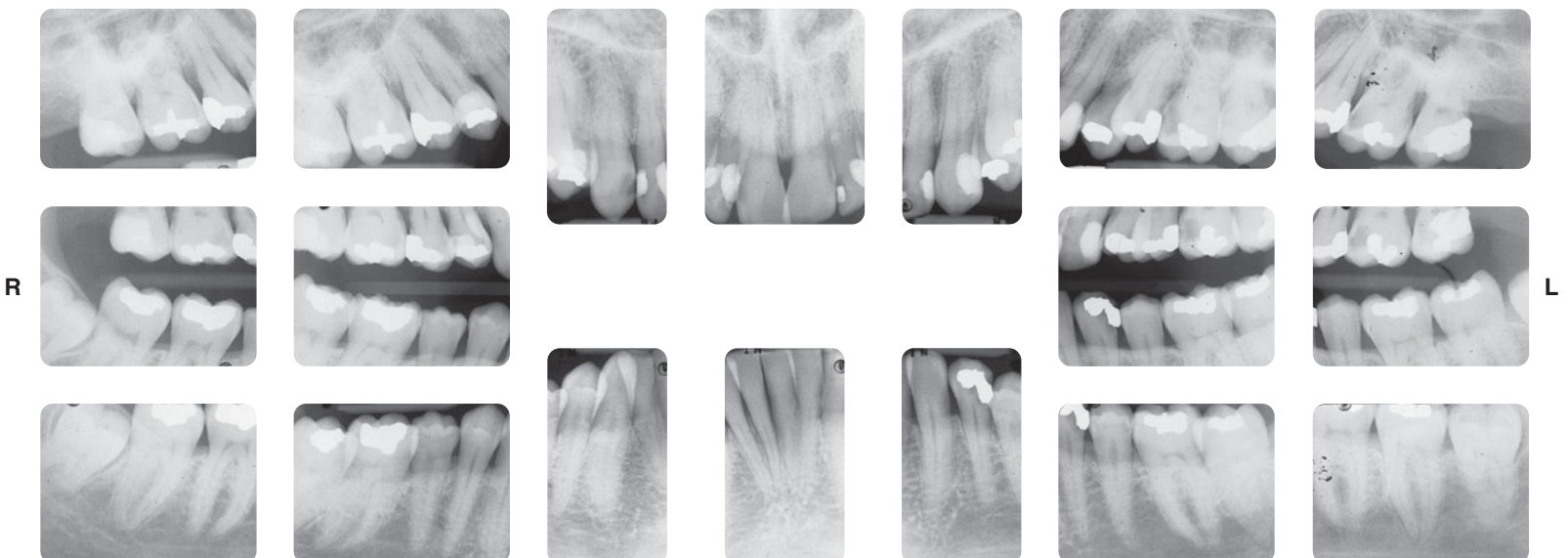
 Clinically missing tooth

 Furcation

 "Through and through" furcation

Probe 1: Initial probing depth

Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Based on the current American Diabetes Association classification system, this patient has type 1 diabetes.

Insulin resistance in the presence of normal insulin production is typical of patients with type 1 diabetes.
 A. The first statement is true, the second statement is false.
 B. The first statement is false, the second statement is true.
 C. Both statements are true.
 D. Both statements are false.
2. This patient's blood pressure reading at today's appointment indicates
 A. A reading within normal limits
 B. A prehypertensive reading
 C. Stage 1 hypertension
 D. Stage 2 hypertension
3. This patient's BMI (body mass index) puts him at risk for each of the following EXCEPT one. Which one is the EXCEPTION?
 A. Diabetes
 B. Hypertension
 C. Dyslipidemia
 D. Decreased pain threshold
 E. Coronary artery disease
4. Which one of the medications taken by this patient does NOT put him at risk for dry mouth and/or taste disturbances?
 A. Avandamet
 B. Avapro
 C. Zaroxolyn
 D. Zocor
5. Which of the following terms is best applied to the location of the gingival margin in the region of the mandibular central incisors?
 A. Enlarged
 B. Recession
 C. Cratering
 D. Clefting
 E. Hyperplastic
6. Which of the following teeth presents with a temporary restoration?
 A. Maxillary right second molar
 B. Maxillary right first premolar
 C. Maxillary right canine
 D. Maxillary left lateral incisor
 E. Maxillary left canine

Competency Level Questions

7. Each of the following may be considered a contributing etiologic factor for the condition of the gingiva in the region of the mandibular anterior central incisors EXCEPT one. Which one is the EXCEPTION?
 - A. Toothbrushing technique
 - B. Position of the frenal attachment
 - C. Oral dosing of medications
 - D. Alignment of the teeth in the arch
 - E. Gingival inflammation caused by plaque biofilm
8. The mandibular anterior central incisors are at increased risk for each of the following EXCEPT one. Which one is the EXCEPTION?
 - A. Accumulation of biofilm
 - B. Sensitivity
 - C. Wear
 - D. Decay
 - E. Trauma

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

9. The most likely cause of the overlapped image of the maxillary left premolar region is
 - A. Malaligned teeth
 - B. Incorrect horizontal angulation
 - C. Excessive vertical angulation
 - D. Inadequate coverage of the image receptor with x-ray beam
 - E. Poor retention of the image receptor holder by the patient
10. What caused the radiolucent artifact present on the left molar bitewing radiograph?
 - A. Accidentally tearing the film packet exposing the film to white light
 - B. Bending the film packet when positioning into the film holder
 - C. Touching the film with a latex-gloved finger when opening the film packet
 - D. Sliding the film out of the film packet too quickly creating static electricity
 - E. Positioning the film packet in the oral cavity backward resulting in herringbone error

Competency Level Question

11. Each of the following teeth present with caries radiographically EXCEPT one. Which one is the EXCEPTION?
 - A. Maxillary right canine
 - B. Maxillary left lateral incisor
 - C. Maxillary left first molar
 - D. Mandibular left first premolar
 - E. Mandibular right first premolar

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

12. Which of the following is the recommended technique for pain control for scaling this patient's mandibular left quadrant?
 - A. Local infiltration
 - B. Field block
 - C. Nerve block
 - D. Supraperiosteal injection
 - E. Intraligamentary injection
13. Each of the following specific local injections may be required to provide anesthesia for scaling this patient's maxillary left premolar and molar sextant EXCEPT one. Which one is the EXCEPTION?
 - A. Middle superior alveolar nerve block
 - B. Posterior superior alveolar nerve block

- C. Greater palatine nerve block
 - D. Inferior alveolar nerve block
14. After treatment in a supine position, this patient should be allowed to sit upright for two minutes before standing up to avoid which of the following medical emergencies?
- A. Syncope
 - B. Diabetic coma
 - C. Hypoglycemia
 - D. Respiratory difficulty
 - E. Anesthesia toxicity

Competency Level Question

15. Which of the following would be the best choice of local anesthetic for this patient?
- A. Lidocaine HCl 2%
 - B. Lidocaine HCl 2% with epinephrine 1:50,000
 - C. Lidocaine HCl 2% with epinephrine 1:100,000
 - D. Mepivacaine HCl 3%
 - E. Bupivacaine HCl 0.5% with epinephrine 1:200,000

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

16. Which of the following terms best applies to this patient's periodontal disease status?
- A. Early
 - B. Moderate
 - C. Advanced
 - D. Aggressive
 - E. Refractory
17. Which of the following handheld instruments would be the best choice for removing the calculus deposit from the distal surface of the maxillary right molar observed in the radiographs?
- A. Straight shank Gracey 7/8
 - B. Rigid Gracey 9/10
 - C. Mini Gracey 11/12
 - D. Standard series Gracey 15/16
 - E. Extended shank Gracey 17/18

Competency Level Questions

18. For each tooth listed, refer to the distance measured from the CEJ (cemento-enamel junction) to the free gingival margin on the facial surface and then select the correct calculation of CAL (clinical attachment level). (Answers may be used only once.)

Tooth: distance measured from the CEJ to the free gingival margin on the facial surface	CAL
___ 1. Maxillary right second premolar: 2 mm	A. 1 mm
___ 2. Maxillary right canine: 1 mm	B. 2 mm
___ 3. Maxillary left second premolar: 2 mm	C. 3 mm
___ 4. Mandibular left lateral incisor: 0 mm	D. 4 mm
___ 5. Mandibular right central incisor: 4 mm	E. 5 mm
___ 6. Mandibular right first premolar: 0 mm	F. 6 mm

USING PREVENTIVE AGENTS

Competency Level Question

19. Which of the following is the recommended treatment for the brown discolored areas observed on the facial surfaces of the maxillary right anterior teeth?
- A. Scaling with hand instruments
 - B. Applying tooth whitening

- C. Applying topical fluoride
- D. Polishing with a power-driven instrument
- E. Burnishing with a desensitizing agent

PROVIDING SUPPORTIVE TREATMENT SERVICES

Basic Level Questions

20. Each of the following is a reason to employ selective polishing for this patient EXCEPT one. Which one is the EXCEPTION?
 - A. Communicable disease
 - B. Areas of demineralized enamel
 - C. Cemental caries
 - D. Spongy, bleeding gingiva
 - E. Probable xerostomia
21. To assist this patient in following the dietary recommendations he most likely received to help manage his medical conditions, each of the following should be reinforced EXCEPT one. Which one is the EXCEPTION?
 - A. Eat small, frequent meals and snacks.
 - B. Monitor intake of carbohydrates.
 - C. Limit alcohol intake.
 - D. Consume fewer fats.
 - E. Eliminate sucrose.

Competency Level Question

22. Which of the following is the best recommendation for this patient's xerostomia?
 - A. Xylitol gum
 - B. Saliva substitute
 - C. Frequent sips of water
 - D. Home fluoride rinses
 - E. Limited salt intake

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

23. Each of the following is applicable and appropriate to approach a discussion with this patient EXCEPT one. Which one is the EXCEPTION?
 - A. "Diets high in carbohydrates associated with weight gain also put you at risk for caries."
 - B. "Poor plaque control has contributed to the crowding and malalignment of your teeth."
 - C. "Uncontrolled diabetes has most likely played a role in the progression of your periodontal disease."
 - D. "Maintaining your oral health has the potential to reduce your risk of coronary artery disease."
 - E. "Some of the medications you are taking have the potential to reduce salivary flow."

Competency Level Questions

24. Which of the following is the most likely reason this patient's physician has recommended periodontal assessment and treatment?
 - A. Improving his periodontal condition may assist this patient with his goal of weight reduction.
 - B. Reducing periodontal inflammation may help this patient better control his diabetes.
 - C. Applying nonsurgical periodontal therapy may indirectly help lower this patient's blood pressure.

- D. Restoring his oral health may eliminate this patient's need for medications.
 - E. Eliminating this patient's periodontal disease may reduce his low-density lipoprotein levels and increase his high-density lipoprotein levels.
25. The need for local anesthesia was not determined during the assessment and therefore was not in the treatment plan to which the patient consented. Because the need for local anesthesia arose after the scaling procedure began, the dental hygienist should
- A. Use topical anesthesia only at this appointment and secure the patient's written consent for use of local anesthesia at the next appointment.
 - B. Obtain the patient's verbal permission to administer the anesthesia before continuing with treatment.
 - C. Sit the patient up in the dental chair to allow him to ask questions regarding anesthesia options and obtain additional written consent.
 - D. Reschedule the patient after he has had the opportunity to weigh anesthesia options.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting his needs, develop a dental hygiene care plan that establishes a framework within which to help him identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with his oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: overweight, diet, and lifestyle

Evidenced by: diabetes, secondary hypertension, and multiple medications

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in freedom from pain

Due to: gingival inflammation and periodontal disease

Evidenced by: hypersensitivity to periodontal instrumentation

Goals: *provide comprehensive pain-free, nonsurgical periodontal therapy*

Dental hygiene actions/interventions: *discuss pain control options with the patient; provide information that assists the patient with making an informed decision; together with the patient select the appropriate pain control method; secure patient's consent; initiate pain control; periodically evaluate efficacy of pain control; assess verbal and nonverbal reactions to procedures to determine the need for administration of additional or alternate methods of pain control; perform instrumentation procedures carefully with precise adaptation*

Deficit identified in skin and mucous membrane integrity of the head and neck

Due to: bacterial plaque accumulation and moderate subgingival calculus

Evidenced by: periodontal disease and subsequent attachment loss

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: lack of knowledge regarding the interrelationships of oral and general health

Evidenced by: inadequate oral health behaviors

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in responsibility for oral health

Due to: lack of knowledge regarding oral health condition

Evidenced by: no regular dental hygiene care

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

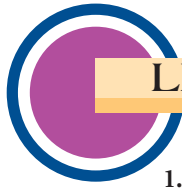
For this patient (P), will lidocaine, the first amide synthesized local anesthetic (I) as compared with articaine, a new amide anesthetic (C) provide better anesthesia (O)?



MAKING ETHICAL DECISIONS

The sensitive oral tissues made the first quadrant scaling appointment a painful and stressful one for this patient. Although he appeared to understand and accept the need for comprehensive treatment over multiple appointments, he cancelled his next appointment and then did not keep the rescheduled appointment. When he didn't show up for the second time, the dentist told you not to call him to follow up, but to wait until the patient decides to call the office and get serious about treatment.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Determine this patient's level on the Learning Ladder (*Unawareness, Awareness, Self-Interest, Involvement, Action, Habit*) or decision-making continuum as it pertains to his oral self-care. Then develop a plan for assisting him with moving up through each level in sequence.
2. Plan an oral self-care session with this patient where you teach him self-assessment methods for determining the health of the gingiva and the efficacy of dental biofilm infection control. Role-play the implementation of your plan with another student playing the role of the patient.
3. Prepare a fact sheet that a dental hygienist may use for sharing information with patients regarding the warning signs for diabetes and the recommendations for testing an individual at risk for the disease.

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CHAPTER 17

CASE 0 Eileen Olds



SITUATION

Eileen Olds works part time as a paralegal in the community legal services office, which provides assistance to individuals who are poor or elderly, minorities, and middle-income families. Her diagnosis of chronic renal failure progressed to end stage renal disease (ESRD) and nine months ago she began dialysis. She is receiving hemodialysis at a health care facility on Monday, Wednesday, and Friday afternoons each week. She has presented today to restore her oral health to get on the waiting list for a kidney transplant.

LEARNING GOALS

Following integration of core scientific concepts and application of the dental hygiene process of care relating to this patient, you will be able to

1. **Assess patient characteristics.**
 - A. Apply correct terminology to oral examination findings.
 - B. Distinguish between normal anatomy and pathology found upon oral examination.
 - C. Describe the appearance of gingival tissues using appropriate terms.
 - D. Determine the nature of oral conditions upon visual inspection.
 - E. Utilize appropriate techniques when measuring blood pressure on the medically compromised patient.
2. **Obtain and interpret radiographs.**
 - A. Select correct radiographic technique.
 - B. Interpret radiographic findings.
 - C. Examine radiographic images for possible manifestation of systemic disease.
3. **Plan and manage dental hygiene care.**
 - A. Investigate possible contraindications to treatment of the medically compromised patient.
 - B. Plan appointment schedule for nonsurgical periodontal therapy for the patient receiving dialysis.
 - C. Identify adverse oral effects of medications taken by the medically compromised patient.
 - D. Recommend oral self-care aids based on patient needs.
 - E. Identify oral signs of systemic disease and its treatment modalities.
 - F. Identify the interrelationship between ESRD, its treatment, and oral health.
4. **Perform periodontal procedures.**
 - A. Select the appropriate instruments for periodontal debridement.
 - B. Predict outcomes of nonsurgical periodontal therapy.
 - C. Identify etiology of probe reading changes observed at six-week reevaluation following initial therapy.
5. **Use preventive agents.**
 - A. Recognize contraindications of treatment modalities and preventive products for the medically compromised patient.
 - B. Recommend the appropriate oral self-care agent for home use for the medically compromised patient.
6. **Provide supportive treatment services.**
 - A. Provide recommendations for coping with xerostomia.
7. **Demonstrate professional responsibility.**
 - A. Provide the patient with correct information regarding the use of oral self-care products.
 - B. Differentiate between ethical responsibility and contraindications to treat the medically compromised individual.

MEDICALLY COMPROMISED PATIENT—Eileen Olds
PATIENT HISTORY SYNOPSIS

Age 50 years
 Gender female
 Height 5' 7"
 Weight 132 lbs.

VITAL SIGNS

Blood Pressure 154/102 mm Hg
 Pulse Rate 74 bpm
 Respiration 14 rpm

1. Under care of physician

Yes ☒ No ☐ Condition: end stage renal disease
(ESRD)

2. Hospitalized within the last 5 years

Yes ☒ No ☐ Reason: surgical placement of
arteriovenous shunt in
right forearm for dialysis

3. Has or had the following conditions

chronic renal insufficiency
chronic renal failure
renal osteodystrophy
mineral and bone disorder (secondary hyperparathyroidism)
hypertension
anemia

4. Current medications

enalapril maleate (Vasotec)—antihypertensive, ACE inhibitor
losartan potassium (Cozaar®)—antihypertensive,
angiotensin-II antagonist
furosemide (Lasix)—loop diuretic
epoetin alfa (Procrit®)—erythropoietin
fluoxetine (Prozac®)—antidepressant
calcitriol (Calciject®)—fat-soluble vitamin D
calcium carbonate (Calci-chew®)—calcium-containing
phosphate binder
heparin (Hep-Lock®)—anticoagulant (I.V. administration
during dialysis only)

5. Smokes or uses tobacco products

Yes ☐ No ☒

6. Is pregnant

Yes ☐ No ☒ N/A ☐

MEDICAL HISTORY

Hemodialysis for the past nine months. Currently undergoing tests to determine if she is a candidate for a kidney transplant. Has dietary phosphate and salt restrictions and chews ice to manage her restricted oral fluid intake.

DENTAL HISTORY

Oral health status screened by the medical transplant team and deemed in poor condition. Her last dental hygiene appointment was five years ago. Has recently started using tartar control toothpaste without fluoride stating that she wanted to remove the deposits on her teeth, and is afraid of ingesting fluoride.

SOCIAL HISTORY

Kidney disease has significantly altered her lifestyle, and while Medicare pays for 80% of her expenses for dialysis, she is overwhelmed with the enormous cost of her disease. Her physician prescribed an antidepressant to help with depression.

CHIEF COMPLAINT

Wants a kidney transplant and was told that her oral health must be improved to qualify for a place on the wait list for a donated organ.

ADULT CLINICAL EXAMINATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Probe 2		1086		524		323	324	514	614	323	314	414	425	636	738	
Probe 1		1087		624		324	425	626	726	523	446	323	326	527	748	
F																
P																
Probe 1		976		444		333	333	535	755	755	335	535	556	757	568	
Probe 2		866		434		323	323	434	535	322	335	423	445	645	547	
R																
Probe 2		857	744	545	555	434	434	434	434	334	323	535	645	549	968	758
Probe 1		977	855	757	774	656	311	211	212	223	324	543	657	758	1069	9710
L																
F																
Probe 1		729	1024	726	625	545	524	525	625	735	525	636	524	529	739	738
Probe 2		627	823	525	523	343	423	313	323	524	424	524	423	417	727	627
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

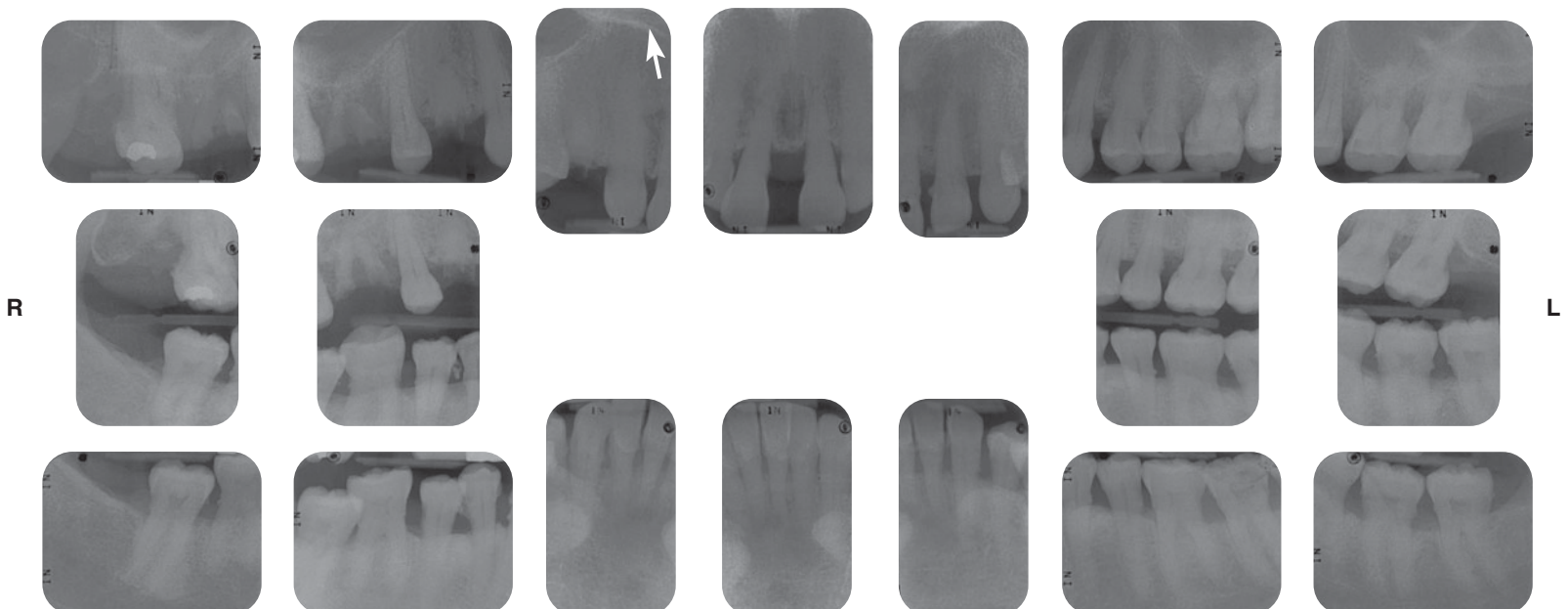
CURRENT ORAL HYGIENE STATUS

Heavy, generalized calculus. Heavy, generalized plaque biofilm.

SUPPLEMENTAL ORAL EXAMINATION FINDINGS

Moderate, generalized bleeding upon probing. Moderate xerostomia.

-  Clinically visible carious lesion
 Clinically missing tooth
 Furcation
 "Through and through" furcation
 Probe 1: Initial probing depth
 Probe 2: Probing depth 6 weeks after periodontal therapy





Right side



Left side



CASE STUDY QUESTIONS

ASSESSING PATIENT CHARACTERISTICS

Basic Level Questions

1. Which of the following terms applies to the space between the maxillary central incisors?
 - A. Centric relation
 - B. Open bite
 - C. Diastema
 - D. Parafunctional
 - E. Fremitus
2. The clinical observation noted in the mandibular sublingual region near the left canine and first premolar (arrow) that is hard when palpated is most likely a
 - A. Torus
 - B. Polyp
 - C. Mucocele
 - D. Cyst
 - E. Ranula
3. Which of the following best describes the papillary gingiva between the mandibular right central and lateral incisors?
 - A. Knifelike
 - B. Cratered
 - C. Blunted
 - D. Rolled
 - E. Bulbous
4. What is the clinical observation contributing to the appearance of the lingual surfaces of the mandibular anterior teeth?
 - A. Developmental anomalies
 - B. Periodontal splinting
 - C. Composite restorations
 - D. Dental calculus
 - E. Hypercementosis

Competency Level Question

5. Which of the following blood pressure cuffs and area to which it is applied is correct for taking this patient's blood pressure?
 - A. Child-size cuff applied to the left arm
 - B. Regular adult-size cuff applied to the left arm
 - C. Regular adult-size cuff applied to the right arm
 - D. Adult thigh-size cuff applied to the left leg
 - E. Adult thigh-size cuff applied to the right leg

OBTAINING AND INTERPRETING RADIOGRAPHS

Basic Level Questions

6. For each radiograph listed, select the vertical angulation setting used to obtain the image using the bisecting technique. (Answers may be used only once.)

Radiograph	Vertical angulation setting in degrees
___ 1. Maxillary right molar periapical	A. +45
___ 2. Maxillary right canine periapical	B. +30
___ 3. Maxillary left premolar periapical	C. +20
___ 4. Mandibular left molar periapical	D. -5
___ 5. Mandibular central incisor periapical	E. -10
___ 6. Mandibular right premolar periapical	F. -15

7. What is the most likely interpretation of the radiopacity observed near the superior edge of the radiograph of the maxillary right canine region (arrow)?
- Evidence of film packet bending during placement in the oral cavity
 - Intersection of the borders of the nasal fossa and maxillary sinus
 - Soft tissue shadow of the tip of the nose recorded
 - Metal attachment arm of the image receptor holder recorded
 - Evidence of a healed bony fracture of the maxilla
8. What is the most likely interpretation of the round radiopacities observed near the teeth roots of the mandibular right and left canine and premolar regions?
- Osteosclerosis
 - Hypercementosis
 - Mandibular tori
 - Condensing osteitis
 - Fingerprint artifacts
9. What is the most likely interpretation of the findings observed in the maxillary right first molar and first premolar regions?
- Retained root tips
 - Supernumerary teeth
 - Microdont molars
 - Implants
 - Retention pins

Competency Level Question

10. The slight ground glass appearance to the mandibular posterior regions and the disappearance of the lamina dura and narrowing of the pulp chambers observed on this patient's radiographs is most likely the result of
- Lack of professional dental hygiene care
 - Adverse effects of medications
 - Trauma from her habit of chewing on ice
 - Renal osteodystrophy
 - Significant calculus at the base of deep pockets

PLANNING AND MANAGING DENTAL HYGIENE CARE

Basic Level Questions

11. Each of the following must be discussed with this patient's nephrologist before quadrant scaling EXCEPT one. Which one is the EXCEPTION?
- Need for prophylactic premedication
 - Determination of blood-clotting time
 - Adequacy of salivary flow
 - Assessment of vital signs
 - Pain management doses and contraindications

12. Quadrant scaling appointments for this patient should be scheduled in the mornings, before her afternoon dialysis session.
- An appointment for extraction of the fractured teeth should be made on Saturday morning.
- The first sentence is true, the second sentence is false.
 - The first sentence is false, the second sentence is true.
 - Both sentences are true.
 - Both sentences are false.
13. Which of the medications prescribed for this patient does NOT increase the risk of dry mouth and taste disturbances?
- Vasotec
 - Cozaar
 - Lasix
 - Procrit
 - Prozac
14. Which one of the following would be the least helpful recommendation for assisting this patient with her goal of improved oral health?
- Power toothbrush
 - Interproximal brush
 - Dental floss
 - Toothpick-in-holder
 - Floss threader

Competency Level Questions

15. The pale appearance of the gingiva and lessening demarcation of the mucogingival junction may be attributed to
- Anemia
 - Hypertension
 - ESRD
 - Dialysis
 - Periodontal disease
16. Even with improved self-care, this patient's medical conditions put her at an increased risk for each of the following EXCEPT one. Which one is the EXCEPTION?
- Development of halitosis
 - Increased dental calculus accumulation
 - Rampant decay
 - Demineralization of alveolar bone
 - Increased gingival bleeding

PERFORMING PERIODONTAL PROCEDURES

Basic Level Questions

17. Which of the following is the best choice to begin initial periodontal debridement in the mandibular right quadrant?
- Plastic scaler
 - Ultrasonic scaler
 - Sickle scaler
 - Chisel scaler
 - Universal curet
18. Which of the following ultrasonic instrument tip designs would be the best choice for initial periodontal debridement of the lingual surfaces of the mandibular anterior teeth?
- Beavertail tip
 - Standard-diameter universal tip
 - Standard-diameter triple bend tip
 - Slim-diameter straight tip
 - Slim-diameter curved tip

Competency Level Questions

19. Which of the following is NOT a likely adverse outcome of scaling this patient's mandibular anterior teeth?
 - A. Tooth mobility
 - B. Root sensitivity
 - C. Gingival recession
 - D. Risk of tooth fractures
 - E. Longer appearance of the teeth
20. Which of the following is the most likely explanation for the mandibular anterior lingual region probe reading changes seen at the six-week reevaluation appointment?
 - A. Patient failed to stay motivated to follow oral self-care instructions given at initial appointment.
 - B. Complex medical conditions that compromise this patient's immune system have limited the healing process.
 - C. Rapid reaccumulation of dental calculus after the initial scaling appointment has most likely prevented tissue shrinkage.
 - D. Probing was done with greater than 10 to 20 g of pressure causing the probe to penetrate the junctional epithelium.
 - E. Heavy calculus limited access to the base of the pocket for accurate probe readings at the initial appointment.

USING PREVENTIVE AGENTS

Basic Level Question

21. Which of the following would be approved for use in treating this patient?
 - A. Air-powder polishing with sodium bicarbonate to remove stain
 - B. Controlled-release local delivery of tetracycline-containing fibers or doxycycline hyclate gel to periodontal pockets not responding to treatment
 - C. Sodium fluoride varnish application for prevention of caries and management of tooth sensitivity
 - D. Subgingival oral irrigation with saline solution for treatment of edematous gingival tissues
 - E. Aspirin or ibuprofen for postscaling pain management

Competency Level Question

22. Which of the following mouth rinses would be the best to add to this patient's long-term daily oral self-care routine?
 - A. Advanced Listerine (essential oils)
 - B. PerioGard® (chlorhexidine gluconate)
 - C. Biotène® Mouthwash (lactoperoxidase enzyme)
 - D. Scope Dual Blast (cetylpyridinium chloride)
 - E. Oral-B Fluorinse® (0.2% sodium fluoride)

PROVIDING SUPPORTIVE TREATMENT SERVICES

Competency Level Question

23. From the following list select the five acceptable additional alternatives to chewing ice that this patient may use to cope with xerostomia and its effects on the oral cavity.
 - A. Chew xylitol gum
 - B. Suck on xylitol lozenges
 - C. Suck on frozen grapes
 - D. Brush every three hours
 - E. Sleep with a humidifier
 - F. Irrigate with saline solution
 - G. Rinse with a nonalcoholic mouth rinse
 - H. Take frequent sips of water

DEMONSTRATING PROFESSIONAL RESPONSIBILITY

Basic Level Question

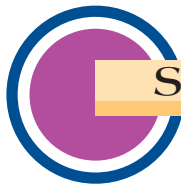
24. Which of the following should be communicated to this patient regarding her use of tartar control toothpaste?
- Tartar control toothpaste will help prevent additional buildup of subgingival dental calculus.
 - Tartar control toothpaste will help prevent additional buildup of supragingival dental calculus.
 - Tartar control toothpaste will help remove the subgingival dental calculus formed on her teeth.
 - Tartar control toothpaste will help remove the supragingival dental calculus formed on her teeth.

Competency Level Question

25. This patient has an increased risk for contracting hepatitis B.

If the dental hygienist has not received the hepatitis B vaccine, he or she can legally refuse to treat this patient.

- The first sentence is true, the second sentence is false.
- The first sentence is false, the second sentence is true.
- Both sentences are true.
- Both sentences are false.



SETTING PATIENT GOALS

ESTABLISHING A DENTAL HYGIENE CARE PLAN

To assist this patient in meeting her needs, develop a dental hygiene care plan that establishes a framework within which to help her identify goals for obtaining oral health. In addition to the clinical assessment, a well-prepared dental hygiene care plan should take into account the patient's age, gender, lifestyle, culture, attitudes, health beliefs, and knowledge level. To help link this patient's needs for overall well-being with her oral conditions, and to provide motivation for achieving better health, the following is a partial list of possible deficits based on the Human Needs Conceptual Model to Dental Hygiene Practice (see Chapter 1). Use this partial list of unmet needs or deficits as a guide in preparing a dental hygiene care plan for this patient. One set of goals and dental hygiene actions/interventions has been completed as an example.

Deficit identified in protection from health risks

Due to: special considerations for dental hygiene care

Evidenced by: life-threatening diseases, multiple medications, and dialysis

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in skin and mucous membrane integrity of head and neck

Due to: bacterial biofilm accumulation; lack of regular professional care

Evidenced by: periodontal disease

Goals: *improve periodontal status to obtain access to the organ donor wait list*

Dental hygiene actions/interventions: *educate patient on the disease process; assess patient's ability to perform oral self-care recommendations; plan, implement, and evaluate nonsurgical periodontal therapy*

Deficit identified in biologically sound dentition

Due to: lack of functioning dentition on the right side

Evidenced by: badly decayed, broken-down maxillary teeth; supereruption of the opposing mandibular teeth

Goals: _____

Dental hygiene actions/interventions: _____

Deficit identified in conceptualization and problem solving

Due to: lack of knowledge regarding oral disease processes

Evidenced by: misconception of the action of tartar control toothpaste

Goals: _____

Dental hygiene actions/interventions: _____



ASSESSING RISK

What is this patient's risk for:

- Caries
- Periodontal disease
- Oral cancer

Use the appropriate form (see appendices) to determine the patient's level of risk and to plan strategies for reducing this risk.



APPLYING EVIDENCE-BASED PRACTICE

Using a database or search engine (consult your campus library), find and evaluate articles on a product or treatment that you will recommend for this patient. Use the PICO process (see Chapter 1) to determine your recommendation. Provide the list of references used to support your decision. Here is one example of a possible recommendation for this patient. Repeat this process for additional recommendations.

PICO question

P = Problem/Patient I = Intervention C = Comparison O = Outcomes

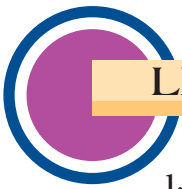
For this patient (P), will an American Diagnostic Corporation® Advantage 6016 Wrist Blood Pressure Monitor (I) as compared with a traditional mercury sphygmomanometer and stethoscope (C) provide better and safer blood pressure analysis (O)?



MAKING ETHICAL DECISIONS

After returning for treatment over the next few months you get to know this patient very well. She becomes increasingly desperate as she waits for a kidney transplant and has asked if you would consider being tested as a potential donor.

- What ethical issue(s) do you face?
- Is there a law, regulation, or standard of care objective that can assist you with resolving the issue(s)?
- What choices of action do you have?
- What are the worst- and best-case scenarios of your choices of action?
- Determine and defend your choices of action.



LEARNING ACTIVITIES

1. Currently in the United States there are 104,748 patients on the wait list for an organ donation. Nearly 4,000 new patients are added to this list each month, and every day 18 people die while waiting for a transplant. Prepare a presentation for your class or other group that provides information to enlighten and inspire your listeners to become organ donors.
2. Together with a partner prepare and present for the class a role-play scenario between the dental hygienist and this patient in which you explain the interrelationship between the patient's medical conditions and her oral health. Each student partner group should choose a different topic to role-play. Examples of topics include the importance of regular professional dental hygiene treatment; oral self-care products to use/avoid and why; what causes halitosis/xerostomia and the steps she can take to manage these; certain medications used in dental hygiene treatment that she must avoid; and the oral manifestations of her medical condition/treatment.
3. Organize a training group with your classmates to participate in the next National Kidney Foundation's Kidney Walk for dialysis patients, organ transplant recipients, donor families, living donors, the medical communities, and the general public to come together to celebrate life and to support the foundation's mission. Go to <http://www.kidney.org> to find out when the next event will be held in your area.

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CHAPTER 18

CASE STUDY QUESTION ANSWERS

PUTTING IT ALL TOGETHER



PART II PEDIATRIC PATIENTS

CHAPTER 3 CASE A MAYA PATEL

1.
 - A Perikymata refers to horizontal developmental lines seen on the facial surface of anterior teeth and is not evident here.
 - B Enamel hypoplasia appears as pitting in the enamel surface and is not evident in this patient.
 - C Depending on the stage, fluorosis appears as parchment-white spots, lines, or as a white “snow capping” along the incisal edges of anterior teeth and is not evident in this patient.
 - D** The scalloped appearance of the incisal edges of the anterior teeth is characteristic of mamelons, developmental lobes found on the incisal edges of newly erupted teeth.
 - E Attrition appears as the wearing away of the incisal edge as a result of contact with the teeth of the opposing arch. In fact, over time, this contact may result in the attrition of the mamelons.
2.
 - A,B Normal respiratory rate for children at age 9 years can range from 18 to 20 rpm.
 - C** Normal resting pulse rate for children at age 9 years can range from 70 to 100 bpm.
 - D This patient’s pulse rate of 110 bpm indicates a higher than normal range for children at age 9 years.
 - E Normal blood pressure readings for children at age 9 years can range from 95 to 105/57 to 65 mm Hg.
3.
 - A The hard tissue appearance of the erupting tooth indicates that this finding is not an aphthous ulcer. Additional indicators for identifying an aphthous ulcer include a red (erythematous) halo surrounding a yellowish-white area of irritation and pain.
 - B A mandibular torus appears in varying sizes as a bony outgrowth on the lingual surface of the mandibular arch. A mandibular torus would not appear to protrude through the soft tissues of the dental arch.
 - C,D The radiographs confirm the erupting mandibular left first premolar and not the presence of a developmental cyst or a retained root tip.
 - E** The cusp of the mandibular left first premolar appears to be erupting into its appropriate position in the arch. The radiographic appearance of this area confirms this clinical assessment.

4. **A** The dorsal surface of this patient's tongue appears to have a yellow coating indicating a need for oral self-care instruction in tongue cleaning.
 - B A fissured tongue occurs infrequently in children, and is often considered a condition of aging.
 - C A coated tongue should not be mistaken for a disease state such as lymphangioma, which would manifest in enlarged lymphoid aggregates. Lymphangioma appears as a raised yellow-pink swelling frequently located on the lateral posterior of the tongue.
 - D,E This patient's tongue does not appear to be enlarged (macroglossia) or ulcerated.
5. **C,D,G,I** Xerostomia, sore throat, taste changes, and increased anxiety are all possible adverse effects of Proventil HFA.
 - A Melanin pigmentation is a normal brownish or darker coloration of the gingival tissues. The incidence of melanin pigmentation varies with race and genetics. It has also been shown to increase in children who live with smokers. Antimalarial drugs can contribute to melanin pigmentation. Although this patient does present with melanin pigmentation, it has not resulted from her medications.
 - B While xerostomia, a side effect of Singulair and Proventil HFA, and mouth breathing may indirectly increase the risk of tooth stains, neither of these drugs are known to cause staining.
 - E,H The medications used to manage asthma do not effect tooth eruption nor do these drugs contribute to malformation or caries.
 - F Gingival bleeding is a result of bacterial plaque accumulation and is not a side effect of Singulair or Proventil HFA.
6. **A,C,E** The incisive foramen, nasal fossae, and median palatine suture would all appear radiolucent.
 - B** This radiopaque horizontal band represents the dense, bony structure of the hard palate.
 - D Although the dense, bony structure of the nasal septum would appear radiopaque, it is imaged vertically between the paired oval radiolucent nasal cavities.
7. **A** Although there is a possibility that this patient may experience an asthma attack during treatment, choosing to expose a panoramic radiograph instead of intraoral radiographs will neither increase nor decrease this risk.
 - B Both the panoramic and intraoral radiographs would most likely be exposed with the patient in an upright position. Additionally, there is nothing in this patient's health history indicating that she cannot be placed in a supine or semisupine position during dental hygiene treatment.
 - C** This patient has a hypersensitive gag reflex that most likely made it difficult to place an image receptor intraorally.
 - D The pairing of fast-speed film with intensifying screens allows panoramic radiographs to use a significantly lower dose of radiation to image the teeth and supporting structures. However, this fact is not the reason a panoramic radiograph was prescribed. Instead, the panoramic radiograph enabled the clinician to produce diagnostic images while managing the conditions and behaviors with which this patient presented.
 - E This patient's anxious state indicates that she would most likely be nervous of all treatment, including both intraoral and panoramic radiographs. Either procedure would require a thorough explanation and demonstration to gain patient confidence and cooperation.

8.
 - A** When an object is positioned outside the panoramic focal trough, or the imaginary zone of sharpness, the object will not be recorded on the image receptor. The natural tilt of the anterior teeth in the arches sometimes places the apices of these teeth outside the focal trough, in this case, causing the tooth roots to be distorted and appear shorter than normal.
 - B The concept of the focal trough and the resulting phenomenon of panoramic imaging should not be mistaken for shortened teeth roots due to external physiologic resorption or incomplete root formation.
 - C The root (or roots) of an erupting tooth continues to develop and calcify after the crown appears in the oral cavity. During this stage of development, the apical foramen of a tooth with incomplete roots will appear widened at the apex. The radiolucency of the dental sac is often visible as well. Whereas several other teeth such as the mandibular premolars exhibit this stage of development, the mandibular incisors do not. Instead, the incisors appear shorter than normal, as if cut off. This appearance is the result of the teeth roots being located outside the panoramic focal trough.
 - D Microdontia refers to a tooth that develops a smaller size than normal. The crowns of the mandibular anterior teeth appear normal and the roots of these teeth appear to be of normal width. The shorter than normal length of the roots is the result of the panoramic imaging concept where these teeth roots were located outside the panoramic focal trough and therefore did not get recorded on the image receptor.
 - E Directing the vertical angulation of the x-ray beam incorrectly may result in a foreshortened or elongated image. However, the panoramic x-ray machine has a position indicating device (PID) in a fixed position, which is correct for producing a diagnostic image. The vertical angulation cannot be altered.
9.
 - A Based on this patient's health history, an asthma attack is a likely occurrence. Although symptoms vary with the patient, rapid breathing and/or shortness of breath may indicate a possible attack. Additionally, difficulty talking and stiffness that may be due to tightening neck muscles indicate signs that an attack is eminent.
 - B** This patient's culture should not be expected to predispose her to display these physical symptoms of anxiety, shortness of breath, and possible impending asthma attack.
 - C This patient has indicated nervousness regarding dental treatment. The nervous patient typically presents with an increased pulse rate, dry mouth, and shortness of breath.
 - D Symptoms of nervousness and increased anxiety are possible adverse effects of Proventil HFA.
10.
 - A A tray that is too large may impinge on the soft tissue in the back of the oral cavity, exciting a gag reflex. Trying the tray in the mouth before loading with impression material will allow for the selection of a comfortable size.
 - B,C Concentration on controlled breathing can help the patient control a gag reflex. Humming and deep-breathing exercises can assist in maintaining an airway to prevent a gag reflex.
 - D** Pressing down on the anterior region of the tray first when seating in the mouth will most likely cause excess impression material to accumulate in the posterior region and initiate a gag reflex. The tray should be seated by pressing down on the posterior region first.
 - E The patient is more likely to cooperate with the procedure when she knows what to expect. Additionally, a confident operator is more likely to instill confidence and trust in the patient.

11. A Oral rinses do not debride the tongue.
B Treated tooth towelettes are marketed for use to remove plaque from tooth surfaces when a toothbrush is not available.
C Tongue cleaners, also called tongue scrapers, are designed specifically for removing debris and bacteria from the dorsal surface of the tongue. The size and design of the tongue cleaner may be less bulky and therefore easier for this child patient, with a hypersensitive gag reflex, to use than brushing the tongue with a toothbrush.
D A dental water jet is used to irrigate subgingivally around the teeth. A dental water jet manufacturer may offer a special tongue cleaner attachment for the purpose of spraying the dorsal surface of the tongue. However, a small, easy-to-use tongue cleaner or scraper is the better choice for this child patient with a hypersensitive gag reflex.
E Chewing sugar-free gum with xylitol after meals has been shown to reduce levels of *Streptococcus mutans* and promote remineralization of potential carious lesions, but will not remove microorganisms from the tongue.
12. A Show-tell-do is the simplest and most effective way to ease apprehension in all patients who appear nervous of treatment procedures.
B Oral sedation may be an extreme measure for managing this patient. Additionally, adding another drug to this child's current medications may not be prudent.
C Papoose board restriction is used to control physical movements for a patient who may be spastic or unruly.
D,E Hypnosis and biofeedback are management techniques generally used for adult dental phobic patients.
13. A Premedicating a patient before oral prophylaxis is prudent when there is risk of developing infective endocarditis. Nothing in this patient's health history indicates the need for antibiotic premedication.
B This patient's blood pressure is within normal range. Nothing in her health history would necessitate that her blood pressure be continuously monitored during treatment.
C When uncontrolled bleeding is a risk factor, a recent prothrombin time can help determine whether it is safe to continue with dental hygiene treatment. Nothing in this patient's health history indicates the need for this test.
D The emergency response anticipated is an acute asthma attack. Having a history of past dental experiences, at age 9, it is highly unlikely that this patient would be put any more at ease by the physical presence of her mother in the treatment room.
E Albuterol is often administered in an acute asthmatic attack. This patient has a prescription for albuterol as the drug Proventil HFA, which is administered using a metered-dose inhaler. Patients with asthma should be instructed to bring their inhalers with them to the dental hygiene appointment. The inhaler should be placed on the bracket table ready for emergency use.
14. A,B,C Given this patient's health history, the breathing difficulty is most likely the result of an asthma attack. The clinician should discontinue treatment and provide verbal reassurance to this patient.
D The difficulty in breathing is most likely a symptom of an asthma attack. The Trendelenberg position with the feet elevated 10 to 15 degrees to increase blood flow to the brain is better suited to a situation involving vasodepressor syncope and is contraindicated in this situation. The patient should be placed in a comfortable position to ease breathing which almost always involves sitting, with the arms forward.

- E Given this patient's health history, an asthma attack may become evident, at which time a bronchodilator should be administered.
15. A *Salmonella typhi* is associated with food poisoning.
 B,C,E,F,G,H,I These bacteria have been commonly implicated in gingivitis, the periodontal condition observed in this patient.
 D *Bordetella pertussis* is associated with whooping cough.
16. A The use of the ultrasonic scaler is contraindicated for this patient with asthma. Additionally, the large pulp chambers of primary teeth and newly erupted permanent teeth would also contraindicate using the ultrasonic scaler.
 B,D The design characteristics of sickle scalers with pointed tips, triangular working ends, and straight lateral surfaces make these instruments a less desirable choice for instrumentation subgingivally.
 C Area-specific curets are more often the instruments of choice for accessing the root surfaces in periodontal pockets. Multiple instruments would be required to complete the whole mouth.
 E The rounded toe, curved back, and complex shank of the universal curet allows for adaptation near the gingival margin and when necessary, subgingival instrumentation in shallow sulci, throughout the entire mouth without having to stop and change instruments when progressing to different regions.
17. A The right maxillary primary first molar presents with caries and the left maxillary primary first molar presents with a restoration. Additionally, according to the radiographic interpretation, each of these teeth will be exfoliated soon. The mandibular primary first molars have exfoliated.
 B The primary second molars do not present with developmental pits in the occlusal anatomy and would not need sealant placement. Additionally, according to the radiographic interpretation, these teeth will be exfoliated soon.
 C,E The permanent first premolars and permanent second molars have not yet erupted.
 D The pits and fissures of the occlusal surfaces of the permanent first (and second) molars are considered to be the most susceptible to caries and therefore this patient's erupted first molars present as ideal candidates for sealants.
18. A The use of xerostomia-causing medications and mouth breathing puts this patient at an increased risk for caries. A self-applied home-use fluoride should be recommended.
 B Mouth rinses containing phenolic-related essential oils are often recommended for patients with gingivitis because of their demonstrated ability to reduce bacterial biofilms. Daily fluoride would better meet this patient's needs.
 C Mouth rinses containing oxygenating agents are often recommended for the short-term treatment of oral infections such as pericoronitis not evidenced in this patient.
 D Although not proven as effective as chlorhexidine gluconate and essential oils, mouth rinses containing quaternary ammonium compounds are sometimes recommended for patients with gingivitis. Daily fluoride would better meet this patient's needs.
 E Although chlorhexidine gluconate use has been shown to be effective at reducing bacterial plaque and *Mutans streptococcus* infections, a self-applied home-use fluoride is a better recommendation for this patient. Chlorhexidine gluconate's adverse effects of irritation to the soft tissues and a change in taste sensations may be compounded by the taste changes and xerostomia this patient experiences as a side effect of her medication.

19. A The highly acidic acidulated phosphate fluoride is often contraindicated for use in this patient with xerostomia.
- B** Because of her reduced salivary flow, a neutral sodium fluoride is the agent of choice.
- C Because of its adverse effects such as gingival sloughing, bitter taste, and teeth staining, stannous fluoride's use as a professional topical fluoride application has decreased.
- D Sodium monofluorophosphate is a fluoride preparation found in over-the-counter dentifrice, and is not used for professional applications.
20. A Weakening the fluoride-rich enamel surface by polishing is particularly detrimental to the patient who presents with xerostomia.
- B,E Power-driven scaling and polishing instruments are contraindicated for the patient who presents with asthma.
- C** Scaling is an effective method of removing stain, when power-driven polishing is contraindicated for the patient exhibiting signs of respiratory difficulty.
- D Toothbrushing alone is not likely to remove the brown stain.
21. A The cause of the gingival sensitivity in the area distal to the mandibular left permanent canine is most likely the erupting premolar. Although this temporary sensitivity might be a patient complaint, it is not anticipated to be a complication for impressions.
- B,C,D This patient's tongue thrust may be a contributing factor to the pronounced overjet and occlusal open bite, but none of these findings is anticipated to be a complication for impressions.
- E** This patient presents with a hypersensitive gag reflex that can be anticipated to make impressions difficult to take.
22. A,D,E The amounts and frequency of eating fermentable carbohydrates has the greatest potential for decay and may be a factor in cultural food preference and eating habits.
- B Understanding the risk potential for caries and explaining the importance of a well-balanced diet from all food groups would be important nutritional counseling information to share with the preparer of the child's food.
- C** This patient's medications do not interfere with nutrient absorption or utilization.
23. A,D The actual time specified to maintain a patient's dental records, which include the radiographs, varies from state to state. Most states require radiographs to be retained 7 to 10 years. Often this statement means that records should be retained for 7 to 10 years after the patient ceases to be a client of the practice. However, it is prudent risk management to retain the radiographs indefinitely, especially when the patient is a minor.
- B Although it is equally important that all radiographs be retained indefinitely as a prudent risk management strategy, the statute of limitations for a minor patient begins at 18 years of age. Therefore, the radiographs should be kept past the time when the patient turns 18.
- C In addition to the risk management strategy that radiographs be retained indefinitely, radiographs can provide documentation of the progress of disease and conditions that have existed previously. Previous radiographs provide documentation with which to compare subsequent radiographs.
- E** Although most states require a practice to keep a patient's dental records, which include the radiographs, for a minimum of 7 to 10 years, the statute of limitations for minors does not usually begin until the patient turns 18 years of age. Additionally, the statute of limitations may not run until the patient discovers a problem, which could occur at some future date. Because of this variability, prudent risk management suggests that the radiographs should be retained indefinitely.

24. A,C,D These answers are incorrect.

B The second part of the Health Insurance Portability and Accountability Act (HIPAA) helps ensure privacy of an individual's health information. However, this patient's mother is responsible for her well-being as long as she is a minor and has a legal right to knowledge regarding her daughter's oral health.

25. **A** Because placing the sticker in this manner is in violation of the Health Insurance Portability and Accountability Act (HIPAA), it would be considered a risk for legal repercussions regarding the handling of a patient's private health information.

B,C These answers are incorrect.

D It is a violation of the Health Insurance Portability and Accountability Act (HIPAA) to identify a medical condition with an individual in this manner. Although the chart will most likely only be handled by individuals within the oral health practice, placing a sticker with this information on the outside of the file clearly alerts all who see it to the condition and the patient's name.

CHAPTER 4 CASE B ZACK WARE

1. **A,D** Mesognathic and orthognathic profiles are demonstrated by a harmonious facial profile in which the maxilla and mandible appear balanced and the lips sealed lightly at occlusal rest without muscle strain.

B This patient's facial profile is best described as retrognathic, where the chin appears retruded, giving the mandible a small appearance. Contributing further to a retrognathic profile, to keep the lips closed at rest, this patient presents with an unbalanced facial musculature. The decreased maxillary lip thickness is indicative of lip strain to achieve a lip seal at occlusal rest.

C A prognathic profile appears as a reverse of the retrognathic profile, with the chin protruded, giving the mandible a larger or longer appearance when compared with the maxilla.

2. **A** Although the anterior teeth appear crowded and malaligned in the arch, the mesiobuccal cusp of the permanent maxillary first molar occludes in line with the buccal groove of the permanent mandibular first molar, and the permanent maxillary canine occludes with the distal half of the permanent mandibular canine and the mesial half of the first premolar indicating a Class I malocclusion.

B When the buccal groove of the permanent mandibular first molar is distal to the mesiobuccal cusp of the permanent maxillary first molar and the distal surface of the permanent mandibular canine is distal to the mesial surface of the permanent maxillary canine, a Class II malocclusion is indicated. Class II, Division 1 is indicated when all of the maxillary incisors protrude forward.

C When the buccal groove of the permanent mandibular first molar is distal to the mesiobuccal cusp of the permanent maxillary first molar and the distal surface of the permanent mandibular canine is distal to the mesial surface of the permanent maxillary canine, a Class II malocclusion is indicated. Class II, Division 2 is indicated when some but not all of the maxillary incisors protrude forward.

D When the buccal groove of the permanent mandibular first molar is mesial to the mesiobuccal cusp of the permanent maxillary first molar and the distal surface of the permanent mandibular canine is mesial to the mesial surface of the permanent maxillary canine, a Class III malocclusion is indicated.

3. A,B,D These answers are incorrect.

C The physiologic external root resorption evident on the primary mandibular left second molar viewed in the panoramic radiograph indicates that this tooth will be exfoliated next. Although the primary maxillary left second molar also exhibits physiologic external root resorption, it appears less advanced. Additionally, the maxillary teeth usually follow the mandibular teeth in a normal exfoliation and eruption pattern. The exfoliated primary mandibular left second molar will be replaced by the developing permanent mandibular left second premolar viewed in the panoramic radiograph.

4. A Although stress and nervousness may play a role in bruxism in children and adolescents as well as adults, occlusal interference is often thought to be the trigger. In this case, the patient has recently undergone the initial stages of orthodontic intervention making occlusal interference the better answer in this case.

B The uneven, scalloped appearance of the incisal edges of the anterior teeth is characteristic of mamelons, developmental lobes found on the incisal edges of newly erupted teeth that have not yet been worn away by normal mastication.

C Chewing bubble gum is not likely to contribute to this patient's bruxism. Occlusal interference is the better answer in this case.

D The most likely cause of this patient's nocturnal bruxism is occlusal interference. Malocclusion may cause grinding or clenching outside the normal range of chewing. Because this patient is undergoing orthodontic treatment, his occlusion is in transition and discrepancies in centric occlusion and centric relation are thought to be a cause of nocturnal bruxism.

E Although the retained primary teeth may contribute temporarily to occlusal disharmonies, it is highly unlikely that the primary teeth are the cause of the bruxism.

5. **A** The radiographs indicate that all of the permanent teeth are present and developing normally. Additionally, there are no congenitally missing teeth or supernumerary teeth evident. However, the lack of arch space is evidenced by significant anterior crowding.

B,C,D These answers are incorrect.

6. A Acids produced by bacteria break down or demineralize enamel, producing a white spot carious lesion that eventually becomes chalky and then detectable as a rough spot by an explorer. The parchment-white color of fluorosis should not be mistaken for caries.

B Demineralized enamel may be remineralized by components in the saliva and/or by exposure to fluoride. The parchment-white color of fluorosis should not be mistaken for demineralized or remineralized enamel.

C These teeth do not exhibit the wearing away of the enamel surface that is characteristic of abrasion.

D Fluorosis refers to the parchment-white color representing hypocalcification of tooth enamel. This patient's history of exposure to a high concentration of fluoride during tooth development further indicates the diagnosis of fluorosis.

E Wear facets, abrasion characterized by flat facets that reflect light, usually result from a mechanical force such as bruxism or other occlusal disharmonies. These teeth do not exhibit wear facets. The unique scalloped edges of the anterior teeth are mamelons, developmental lobes found on the incisal edges of newly erupted teeth that have not yet been worn away by normal mastication.

7. A Caries appears radiolucent.

B Enamel pearls appear as small round or oval radiopacities within the pulp chambers of affected teeth. Although dense radiopaque structures, enamel pearls would not appear as radiopaque as metallic restorations.

C This characteristic appearance of buccal pit amalgam restorations should not be confused with processor artifacts.

- D The photographic observation of amalgam restorations rule out the possibility of orthodontic brackets. The size, shape, and location of these radiopacities indicate amalgam restorations.
- E** The radiopacities indicate the radiographic appearance of buccal pit amalgam restorations. The dense nature of amalgam causes these restorations to appear radiopaque on the resultant radiographs.
8. 1. **C** The radiopacity, or clear/blank region superior to the maxillary central incisors resulted from radiation being blocked from reaching the image receptor. The images of normal anatomy should have appeared in this region. It is likely that a dense object, such as a part of the panoramic machine, was accidentally in the path of the x-ray beam, however, the cause of the blocked radiation in this case is unknown.
 2. **A** This unerupted tooth appears with the normal radiolucent dental sac that surrounds the dental papilla where the dentin and the pulp structures of the tooth develop.
 3. **D** This small amalgam has the typical radiopaque appearance with irregular margins, in the location of an occlusal restoration.
 4. **E** The cephalostat uses two plastic ear rods to stabilize the skull into position. The penetrating x-ray beam will image the ear rods onto the resultant image receptor. Knowledge of the equipment used to record a cephalometric radiograph will help distinguish these parts from other radiopaque findings.
 5. **B** This primary molar is almost unrecognizable as it has undergone physiologic resorption in response to the erupting permanent premolar.
9. A Periodontal status is best evaluated with intraoral radiographs such as periapicals and vertical bitewings.
 - B** A cephalometric radiograph is most often used to evaluate growth and development and is especially useful in assessment of the dentition and the relationship of the arches for orthodontic intervention and treatment.
 - C The radiograph most often used to image caries is the horizontal bitewing. Other intraoral radiographs such as the vertical bitewing, periapical, and occlusal would all be better choices than extraoral radiographs for imaging caries.
 - D The cephalometric radiograph images a lateral view of the skull, superimposing the right and left structures making evaluation of the sinus cavities difficult. The better choice for imaging the sinus is the Water's extraoral projection.
 - E The cephalometric radiograph images a lateral view of the skull, superimposing the right and left structures making evaluation of specific areas for the detection of a specific condition difficult. The panoramic radiograph is often used as a survey for the detection of occult disease, although this use is questionable practice. When a condition or disease is suspected, a radiograph specific for the site of interest should be recommended.
10. A The midsagittal plane is an imaginary vertical line that divides the left and right sides of the body.
 - B** Proper positioning for cephalometric radiographs requires the location and alignment of skeletal landmarks. The device imaged on this radiograph is assisting with aligning the Frankfort plane. The Frankfort plane, or orbitomeatal line, extends from the superior border of the external auditory meatus to the infraorbital rim and should be positioned parallel to the floor.
 - C The occlusal plane is an imaginary line drawn horizontally across the chewing surfaces of the teeth. The occlusal plane is usually placed into a position that is parallel to the floor for intraoral radiographs.
 - D Using the terminology *vertical plane* simply implies any dimension that is positioned up and down, or vertical to the floor.

- E Using the terminology *mandibular plane* implies reference to the occlusion plane, an imaginary line drawn horizontally across the chewing surfaces of the teeth.
11. A During internal resorption, as the tooth structure demineralizes, the pulp chamber and root canals widen as a result. The normal development of this patient's teeth at this age should not be confused with internal resorption.
- B During external resorption, as the tooth structure demineralizes, the tooth roots appear to get shorter as a result. The normal development of this patient's teeth at this age should not be confused with external resorption.
- C Cervical burnout refers to the radiolucent optical illusion at the cervical region of the tooth that presents when a very radiopaque structure is imaged next to a very radiolucent structure. Cervical burnout mimics decay and can be a hindrance when interpreting caries.
- D** The tooth root continues to develop after the appearance of the crown clinically. At first the pulp chamber appears wide and open at the apex. As the root develops, the pulp chamber narrows and then closes at the apex. Additionally, this patient's mandibular canines are malpositioned, in torsoversion, and appear rotated, giving a particularly wide appearance to the root canal.
- E Over time, depending on the severity, bruxing can lead to tooth changes such as attrition and the formation of secondary dentin. However, the radiolucent appearance of these tooth roots is the result of normal development and not a result of nocturnal bruxism.
12. **A** Effective toothbrushing is this patient's greatest immediate need. Because he indicates distress over brushing around his braces, a power toothbrush could be an effective plaque removal alternative to a manual brush.
- B An oral irrigation device is recommended as a useful adjunct to toothbrushing, but this patient's primary problem must first be addressed. Oral irrigation can be added later, once brushing effectiveness is achieved.
- C,D Floss threaders and the use of a sulcus brush are time-consuming. Motivation to use additional oral hygiene aids will be possible in the future if the dental hygienist can first reinforce this patient's plaque removal success with the power toothbrush.
- E Wooden wedges for cleaning proximal tooth surfaces in regions where the interdental gingiva is missing would not be recommended for this patient.
13. A Incomplete development of a sense of logic and parental dependence would be more characteristic of preschool children. Characteristics of this patient's age group include a fully developed sense of logic evidenced as the patient begins to view the world around him with a more critical eye.
- B An increasing independence from parental influence probably began in this patient as he entered elementary school. At this stage, the patient assumed more control over his self-care.
- C By age 12 this patient has developed a sense of reality and conceptualization of the scientific principles of cause and effect.
- D Adults who have passed through the teenage years, where a sense of invincibility rules, will more readily accept preventive regimens for preventing later health problems. However, a patient in middle school and entering the teenage years will be less likely to listen to self-care instructions that focus on benefits at a future date.
- E** Convincing adolescents to accept and comply with preventive regimens is difficult because of their orientation to present-time activities and lack of concern for preventive health care in general. Discussion of developing important health habits for the future, such as the need for orthodontic intervention, protection from risks of athletic activities, and tobacco cessation programs, may not seem pertinent to youth in this age group.

14.
 - A Because adolescents are striving for independence from parental control, parents play a minimal role in motivating oral self-care of these patients.
 - B Finding out what interests the adolescent patient and linking oral health to that interest would be more likely to motivate this patient than showing him the chart. Additionally, adolescents are less motivated by what has happened and what might happen at a future date to their teeth if they do not improve self-care.
 - C** Although adolescents generally possess the dexterity to perform a self-care regime that will maintain their oral health, they typically lack the motivation to perform these skills on a regular basis. First, appealing to their perceived needs motivates them to act on new, healthy behaviors. Second, providing a new or unique oral hygiene aid that appeals to the adolescent, such as a power toothbrush, can provide an additional motivator to perform the desired healthy behaviors.
 - D Adolescents are likely to react adversely to being told what to do by an authority figure.
15.
 - A Knifelike describes marginal gingiva that contours flatly to the tooth.
 - B** Rolled marginal gingiva appears as an enlarged doughnut-shaped ring of gingiva around the teeth.
 - C Cratered papillae describes a cupping out of the normal papillary shape.
 - D The term *clefting* is used to describe a V-shaped or slit-like indentation in the marginal gingiva.
 - E Normally pointed or slightly rounded papillae that become increasing rounded and no longer fill the interproximal space are described as blunted.
16.
 - A** During the eruption of the teeth, the appearance of the gingiva is often described as thickened, rounded, or rolled. As the eruption process continues, the gingiva appearance flattens out and the marginal gingiva takes on a more knifelike appearance. This can be observed when comparing this patient's photographs 1 month later.
 - B It is unlikely that subgingival calculus is present on the facial surfaces of these erupting teeth. Although it is possible, the better explanation for the appearance of the facial gingiva in this region is the eruption process.
 - C The effects of spit tobacco are likely to be leukopakia in the region the tobacco is held and not a thickened, rolled appearance to the facial gingiva in this region. The rolled appearance of the facial gingiva is due to the eruption process.
 - D Mouth breathing may cause irritating drying conditions in the anterior region leading to increased redness and gingivitis. However, the rolled appearance of the facial gingiva is due to the eruption process.
 - E Frequently ingesting sports drinks that are high in fermentable carbohydrates puts this patient at risk for caries. However, the thickened, rolled appearance of the facial gingiva in this region is due to the eruption process.
17.
 - A As a prudent measure for this patient entering orthodontic treatment, all teeth exhibiting pits and fissures should be recommended for sealants.
 - B,D Fluoride application in the form of varnish and oral irrigation will benefit the orthodontic patient.
 - C** Enamel microabrasion is used to esthetically treat discrete white spots on the teeth. Microabrasion removes a shallow surface of enamel that is replaced with composite resin. This patient's white spots are the result of fluorosis and would not be treated in this manner.
 - E To avoid caries and periodontal problems during the course of orthodontic treatment, strict attention to dietary habits such as snacking and types of foods consumed is required. Additionally, there should be an investigation into whether the sports drinks he consumes throughout the day contain sugar.

18. A,C,D,E Sodium fluoride, acidulated phosphate fluoride, and stannous fluoride treatments are applied under dry conditions and require that the patient not drink for 30 minutes following application.
- B** Fluoride varnish sets rapidly in the presence of saliva and although the patient should be advised not to eat, brush, or floss for a period of 4 hours following application, fluoride varnish does not require abstinence from drinking for a period of time following application.
19. A Rubber cup polishing would be difficult around the orthodontic brackets and may not be completely effective at stain removal.
- B Powered polishing would be the better choice over manual toothbrushing for removing the stains.
- C** This patient's teeth are indicated for air-powder abrasive polishing to effectively remove plaque and stain around his orthodontic appliances. Because he has his permanent dentition and no respiratory illnesses this procedure is not contraindicated.
- D Although time-consuming, the porte polisher can be an effective device when professional powered stain removal techniques are contraindicated, which is not the case for this patient.
20. A The casts have not been trimmed appropriately so that an imaginary line drawn at the occlusal planes of the arches would be parallel to the bases.
- B The posterior borders of the casts do not appear to be at right angles to the bases.
- C The casts would not remain balanced to rest together naturally if stood on the posterior bases.
- D** Although the maxillary cast is not appropriately trimmed out from the canines to a point in the midline, the anterior border of the mandibular cast is appropriately trimmed to an arc shape.
- E The bases appear to be larger than the appropriate one-third art portion of the casts.
21. A,C,D These answers are incorrect.
- B** Nicotine, found in all tobacco products, is a highly addictive drug that acts in the brain and throughout the body. Dip and chew contain more nicotine than cigarettes. Initiation of tobacco use is highly correlated in the adolescent age group as a result of the insecurity and rebellious characteristics of this age group. Media stereotypes and star athletes are powerful influences in teenagers' behaviors and self-image.
22. A Nicotine, found in all tobacco products, is a highly addictive drug.
- B Spit tobacco contains more nicotine than cigarettes.
- C** Patients this age and their friends are often misinformed regarding the relationship of spit tobacco and athletic performance. Although this patient most likely receives an abundance of health information, media and athletic role models often impress children and adolescents with misinformation. However, in a major league baseball poll, not one player who used dip or spit tobacco said that the tobacco improved his game or sharpened his reflexes.
- D In addition to the health problems associated with cigarette smoking, spit tobacco contributes to periodontal disease, caries, and oral cancer.
- E Spit tobacco increases risk of oral cancer and leukoplakia, considered to be precancerous.
23. A,B,C,E A hard plastic thermoset resin mouthguard is used to treat adult nocturnal bruxism and would not be the material used to fabricate a mouthguard for this patient.

- D** Because the American Dental Association Council on Access, Prevention and Interprofessional Relations and the Council on Scientific Affairs recommend mouth protection for patients who engage in recreational activities such as skateboarding, this patient should be using a mouth protector specifically designed for adolescents who engage in sports and/or recreational activities that increase the risk for trauma to the oral cavity. A thermoplastic boil-and-bite mouth protector is the appropriate appliance choice for a patient in orthodontic brackets.
24. **A** This patient is a minor, under 18 years of age, and cannot legally give informed consent to undergo nonurgent care such as dental hygiene treatment.
- B Allowing the patient to participate in completing his health history may elicit more information than if his parent completed the form alone.
- C To assist in gaining the patient's cooperation with the care plan, it is important for the dental hygienist to gain his understanding of what is required and his trust in the treatment. However, because this patient is a minor, the dental hygienist is obligated to explain oral health findings and the care plan to both the patient and his parent.
- D Providing an opportunity for the patient to contribute to the health history alone, away from his parent, is likely to elicit additional important information regarding his oral health and other behaviors, in this case, his spit tobacco use.
- E The health history of all patients should be kept current.
25. A,B,D These answers are incorrect.
- C** Because of the seriousness of this finding, the dental hygienist is obligated to report this patient's use of spit tobacco to his mother and to assist with resources and recommendations for intervention for cessation. The term *pater-nalism* refers to actions taken by the health care provider in the best interest of the patient, without giving the patient a choice in the matter.

CHAPTER 5 CASE C

ANDREW CHRISTIANSON

1. A When present, linea alba refers to a raised, horizontal line on the buccal mucosa corresponding to the region where the teeth meet in occlusion.
- B** The mucogingival line marks the junction between the pale pink attached gingiva and the darker red alveolar mucosa.
- C The free gingival margin refers to the crest of the free gingiva nearest the incisal/occlusal surface of the tooth.
- D Bone exostosis refers to a raised excess of bone, called tori, when present on the lingual aspect. Although pronounced, the mucogingival line is a soft tissue junction and should not be confused with hard tissue exostosis.
- E The normal mucogingival line should not be confused with scarring that results from wound healing.
2. **A** Excessive wear, most likely the result of chronic bruxing, has worn away the surface enamel to reveal the dentin.
- B The yellow color represents the exposed dentin that has resulted from excessive wear and not from caries.
- C The excessive wear noted in these regions indicates worn enamel that has exposed the underlying dentin.
- D The teeth surfaces have been worn away, exposing the underlying dentin. Food debris would appear on top of the tooth.
- E Cementum covers the root surface.

3.
 - A Abfraction refers to cervical destruction of the tooth structure, purported to occur when occlusal forces cause stress on the tooth.
 - B Abrasion refers to a mechanical wearing away of the tooth surface by a foreign object such as toothbrushing.
 - C Attrition refers to a mechanical wearing away of the tooth surface by the forces of occlusion, such as bruxing.
 - D Erosion refers to a chemical wearing away of the tooth surface, such as when stomach acids are regurgitated into the oral cavity.
 - E** The incisal edge of the maxillary left central incisor appears chipped.
4.
 - A Hidden or backward caries refers to caries that seems small, detected only as a pinpoint lesion clinically. However, the spread of caries along the dentino-enamel junction creates a much larger lesion that often undermines the tooth surface.
 - B Early childhood caries refers to caries that develops in the first 3 years of the child's life.
 - C** This patient's chronic caries have been progressing over time. The dentin in the large lesions appears stained brown-black and the soft dentin appears as if it could be scooped out.
 - D Arrested caries refers to lesions that become remineralized.
 - E Recurrent caries describes caries that reoccurs around the margins of previously placed restorations. The brown-black stained dentin on the affected teeth should not be mistaken for metallic restorations.
5.
 - A Intrinsic stains occur within the tooth and endogenous stains are caused by factors within the tooth.
 - B Intrinsic stains occur within the tooth and exogenous stains are caused by factors external to the tooth.
 - C Extrinsic stains, resulting from factors outside the tooth, can be caused only by factors external to the tooth or exogenous.
 - D** Inadequate self-care has resulted in the extrinsic staining present on the facial surfaces of the mandibular anterior teeth. The staining is caused by factors outside the tooth (biofilm and materia alba accumulation) and is therefore referred to as exogenous.
6.
 - A** A side effect of Adderall is dry mouth, or xerostomia.
 - B,C,D,E The oral adverse effects of Adderall are dry mouth and possible unpleasant taste. Early tooth loss, risk of congenitally missing teeth, tooth staining, and mouth breathing are not side effects of this medication. Possible systemic side effects of this medication include a modest increase in blood pressure and heart rate.
7.
 - A** These stains are the result of overlapped films that prevented chemicals and rinse water from reaching this area. Upon careful examination an outline can be observed that represents the outline of the edge of the overlapping film.
 - B Opening the film packet in white light conditions would result in a black, overexposed region.
 - C If excess saliva is not removed from paper film packets, over time the moisture can penetrate and cause the black paper inside the film packet to stick to the film.
 - D Static electricity creates a white light spark that can expose the film. The result is a radiolucent spark or lightning-pattern artifact imaged on the film.
8.
 - A,B The primary canines most likely did have completely developed normal roots that are now undergoing normal physiologic external resorption in response to the erupting permanent canines.
 - C** The erupting permanent canines are causing the primary canines to undergo normal physiologic external resorption.

- D Internal resorption is characterized by a widening of the pulp and/or root canal chambers as the hard tooth structure demineralizes. The shortened, or disappearing, root structure observed here is external resorption.
9. A The normal appearance of the dental sac should not be confused with a dentigerous cyst that surrounds the crown portion only of an unerupted, often impacted tooth.
- B** This tooth is unerupted. The radiolucency represents the dental sac that surrounds a developing tooth.
- C The normal appearance of the dental sac should not be confused with an abscess that would appear as a radiolucency at the apex of the affected erupted tooth.
- D The dental sac surrounds the dental papilla where the dentin and the pulp structures of the erupting tooth develop.
- E Sharpey's fibers refer to the part of the periodontal fibers that attaches to the tooth by embedding into the cementum. Sharpey's fibers are not imaged on radiographs.
10. A A condition of overgrowth of cementum, called hypercementosis, manifests as a wider than normal, often bulbous tooth root.
- B** Newly erupted teeth are formed of primary dentin. As the tooth comes in contact with teeth in the opposing arch, secondary dentin begins to form and continues throughout life. As secondary dentin continues to form, the pulp chambers and root canals of these teeth will gradually appear smaller and narrower.
- C The pathologic condition known as internal resorption will create a widened appearance to the pulp. However, the age of this patient indicates that these newly erupted teeth have not yet formed the secondary dentin that will cause the appearance of these wide root canals to narrow over time.
- D Sclerotic dentin, where the dentinal tubules fill with a dentin material, is formed in response to trauma or decay. This condition is determined from a histological examination and does not appear on radiographic images.
- E A pulpal infection such as an abscess would be observed as a radiolucency at the apex of the tooth.
11. A, B The primary maxillary left first molar and the primary mandibular right canine appear to be undergoing physiologic external resorption at the apices.
- C The permanent maxillary right canine is unerupted.
- D The permanent mandibular left second molar is unerupted. The radiolucency observed in the apex region is the dental sac of this developing tooth.
- E** Radiolucencies can be observed at the apices of the permanent mandibular right first molar, the cause of which is most likely the large caries observed on this tooth.
12. A,B,C The physiologic external root resorption evident on the primary mandibular right first molar is more advanced than the resorption observed on the primary maxillary right first molar, the primary maxillary right canine, and the primary mandibular left second molar.
- D Although the mandibular left canine also exhibits physiologic external root resorption, it appears less extensive than the primary mandibular right first molar. Additionally, the molars usually follow the canines in a normal exfoliation and eruption pattern.
- E** The physiologic external root resorption evident on the primary mandibular right first molar indicates that this tooth will be exfoliated next. Although the primary mandibular left canine also exhibits physiologic external root resorption, it appears less extensive. Additionally, the molars usually follow the canines in a normal exfoliation and eruption pattern.

13.
 - A The gingivitis evident is due to this patient's lack of effective self-care that has allowed the accumulation of bacterial biofilm. The presence or absence of gingivitis will not have an effect on the gag reflex.
 - B Color and consistency of this patient's hard palate rugae appears within normal limits. Although palpation of the posterior region of the soft palate may stimulate a gag reflex, in most patients the hard palate, particularly the anterior region, is less likely to do so.
 - C Although physical stimulation of the posterior region of the tongue may elicit a gag reflex, a white coating on the dorsal surface indicates this patient's lack of effective self-care.
 - D** The enlarged tonsils and uvula have the potential to affect the sensitivity of this patient's gag reflex.
 - E Depending on the stage of eruption, certain teeth may interfere with the clinician's fulcrum, or the placement of a radiographic image receptor, but the pattern of eruption will not have an effect on the gag reflex.
14.
 - A Short appointments are recommended for the pediatric patient with ADHD.
 - B Rampant caries, poor oral self-care, and xerostomia are indications for administering a professional fluoride treatment.
 - C** Scheduling back-to-back long scaling appointments within 24 hours, called full-mouth disinfection, would not be indicated for this pediatric patient.
 - D Multiple severe caries and this patient's medical and social history indicate a need for nutritional counseling.
 - E Due to a possible increase in blood pressure and heart rate, patients taking Adderall should have their vital signs monitored at each appointment.
15. A,C,D,E Only the nitrous oxide sedation would be contraindicated.
 - B** Patients whose tonsils narrow the airway are at increased risk for airway obstruction when administering nitrous oxide sedation.
16.
 - A** Children are less likely to be motivated by being told of consequences of today's action on a future event. Additionally, verbal instructions without a demonstration of the technique or without the use of media that enhances the instructions are less likely to be understood and remembered.
 - B Using the patient's mouth to demonstrate the technique helps make the skill more realistic for the patient. The use of disclosing solution can help gain the patient's attention and make learning fun. Additionally, having the patient try the technique in his own mouth provides an opportunity for the dental hygienist to observe his grasp of the skill and helps provide feedback that specifically targets his needs.
 - C All patients respond favorably to positive feedback. Complimenting the patient on not only his performance but also on his desire to want to learn better self-care for healthier teeth may help motivate him to better oral health.
 - D Children respond well to a reward system and often find competition for a prize fun and challenging. Placing a star sticker in the patient record or using a visual reward system that this patient can relate to his love of video games can help make learning and performing the desired behaviors fun and challenging.
 - E Repeating instructions multiple times and in multiple ways will help make the message more likely to be interpreted correctly and will provide reinforcement for the patient with a short attention span.
17.
 1. **B** The translucent, thin acquired pellicle that covers the teeth has aided the attachment of the microbial biofilm to these teeth surfaces.
 2. **C** Left undisturbed for 1 to 2 days the gram-positive cocci adhere to the pellicle.

3. **A** If left undisturbed, the population of the biofilm increases with the addition of gram-positive filamentous bacteria and slender rods after 2 to 4 days.
 4. **E** After one to two weeks vibrios and spirochetes appear. It is during this time that clinical signs of gingival inflammation can be observed.
 5. **D** The thickness of the biofilm noted at the cervical third of these teeth, and the gingival inflammation indicate that bacteria have multiplied and matured into an interbacterial matrix.
18. **A** The maxillary right first molar is the only permanent molar that does not exhibit caries that would contraindicate sealant placement.
- B,C,D Each of these teeth exhibits caries that contraindicate sealant placement.
19. **A** An adjunct to brushing with dentifrice, brushing with 0.4% SnF₂ gel is an effective supplement to professional fluoride treatments and often prescribed to avoid white spot lesions in orthodontic patients. However, given this patient's caries history, the custom tray application of 0.05% APF is the better recommendation. Additionally, patient compliance is likely to be low because this technique requires the patient to brush twice, once with a dentifrice and then again to apply the fluoride gel. Involving the patient and his mother in learning the tray application method may challenge the patient to take an active role in performing a special procedure to benefit his oral health.
- B** Daily rinsing with 0.05% NaF is recommended for the general prevention of caries. Given this patient's caries history, the custom tray application of 0.05% APF is the better recommendation. To gain maximum benefit with a fluoride rinse, significant patient compliance is required. The patient must be instructed to swish properly and for the recommended time. Additionally, many over-the-counter rinses contain alcohol that should be limited to use by adult patients and patients without xerostomia.
- C** Custom or disposable tray application of prescription strength 0.5% APF once daily is recommended for this patient with rampant caries and reduced salivary flow.
- D** Weekly, high-potency oral rinses containing 0.2% NaF are most often used for professionally administered community, group, or school-based fluoride treatment, and would not be recommended for this patient's daily home use.
- E** Brushing with dentifrice containing Na₂PO₃F is recommended for all patients. This patient is most likely already using a commercial product that contains Na₂PO₃F. He should be encouraged and supervised to increase brushing frequency. However, another home fluoride application should be introduced in addition to his toothpaste.
20. **A** This patient's restricted airway has a potential to limit his breathing, contraindicating the use of air-power polishing.
- B** The porte polisher can be an effective alternative if the power-driven rotary instrument was contraindicated for this patient.
- C** Oral irrigation will not remove the thick biofilm and stain.
- D** Scaling will most likely be needed to remove the thick biofilm present on the facial surfaces of the mandibular anterior teeth. Any remaining stain can be removed by essential selective polishing.
- E** Toothbrushing is not likely to remove this patient's stain.
21. **A** Increased frequency of eating cariogenic foods decreases the opportunity for remineralization between consumption, aiding the caries process.
- B** Snacking on fermentable carbohydrates, including soda and sugary drinks, increases the risk for caries.

- C Soft, highly retentive foods are more likely to be retained in the oral cavity, contributing to conditions conducive to producing caries.
 - D The sequence of when fermentable carbohydrates are consumed plays a role in the risk for caries.
 - E** Although the number of calories consumed per day is important for weight management and developing lifelong good eating habits, daily caloric intake does not play a direct role in managing the diet for the purpose of caries control.
22. A,B Sticky snacks such as cookies and pretzels are retained longer in the oral cavity, thus increasing the risk for caries.
- C The fermentable carbohydrates in ice cream lower plaque pH and put teeth at risk for caries.
 - D In addition to the fermentable carbohydrates found in sugary soft drinks that lower plaque pH and put teeth at risk for caries, sodas are often consumed over a longer period of time, thus increasing the length of time that the teeth are at risk.
 - E** Sticky foods are more likely to be retained in the oral cavity longer and increase the time of an acid attack on the teeth. However, chewy carbohydrates, such as gummy bears, increase mastication and stimulate salivary flow, making this snack less damaging to the teeth than the others listed.
23. A The smaller size and less dense tissue of children require less radiation exposure compared to the adult patient.
- B A reduction by one-fourth of the exposure setting used for dentate adult radiographs is recommended for exposure of edentulous adults or edentulous regions of the oral cavity of adult patients.
 - C A reduction by one-third of the exposure setting used for adult radiographs is recommended for children between the ages of 10 and 15.
 - D** ALARA stands for “as low as reasonably achievable” and is the ethical principle endorsed by health professionals to reduce radiation exposure to patients. According to ALARA, a reduction by one-half of the exposure setting used for adult radiographs is recommended for children under 10 years of age.
24. **A** Willfully and deliberately not attending to a child’s needs to maintain oral health is neglect and considered to be a form of abuse. However, care should be taken not to confuse neglect with this patient’s parent’s inability to afford the costs involved with restoring oral health. Additionally, this patient’s mother lacks the knowledge of the importance of his primary teeth and most likely did not know that his permanent teeth were in need of professional care. Her actions seem rooted in ignorance and not a deliberate desire to harm her child.
- B,C,D These answers are incorrect.
25. A Threatening or bullying this patient’s mother is less likely to produce acceptance of the needed treatment. Threats that make her feel as if she has no choice but to accept the treatment plan may produce a situation where she refuses all treatment.
- B** Patients generally respond more favorably to positive statements than to negative threats. Additionally, this patient’s mother is more likely to accept a recommended treatment plan when she feels in control of the decision. Pointing out that she is now more knowledgeable of the role primary teeth play in future oral health, she is likely to see the value in the recommended treatment.
 - C Demonstrating moral superiority over this patient’s mother is likely to produce a negative response and is less likely to help her feel empowered to make decisions that she will need to help carry out.

- D Pressuring this patient's mother or pushing her into accepting treatment before she has processed all the needed information to make her own decision is less likely to produce the desired result.
- E Blaming the child's mother for his poor oral health is not likely to create acceptance of a treatment plan that will surely include a commitment from her, not only to keep future appointments but also to help foster a change in oral health care habits and diet, and to supervise better self-care.



PART III ADULT-PERIODONTAL PATIENTS

CHAPTER 6 CASE D KATHERINE FLYNN

1.
 - A** G. V. Black established the standard for classifying caries in the early 1900s. This system has since been customarily used for describing cavity preparations and restorations as well. The amalgam restoration observed on the lingual surface of the maxillary left lateral incisor is classified as a Class I restoration. A restoration that involves only one surface of the tooth such as the occlusal surface only of posterior teeth, the facial and lingual surface only of molars, or the lingual surface only of incisors is classified as Class I.
 - B A Class III restoration involves the proximal surface, but not the incisal angle of incisors and canines.
 - C A Class IV restoration involves the proximal surface and the incisal angle of incisors and canines.
 - D A restoration placed along the cervical one-third of a tooth's facial and/or lingual surfaces (but not the pits or fissures) is classified as a Class V restoration.
 - E A restoration placed at the incisal edge only of anterior teeth or on the cusp tips only of posterior teeth is classified as a Class VI restoration.
2.
 - A The maxillary first molars are missing and therefore are not available to support the removable partial denture. The denture serves to provide functional replacement of these missing teeth.
 - B The maxillary anterior teeth support the major connector of the partial denture. The denture clasps do not rest on these teeth.
 - C The mandibular left first premolar and first molar teeth are restored with a fixed three-unit bridge that is not removable. The first premolar and first molar have been restored with crowns that make up the abutment teeth. The second premolar is missing and has been restored with a pontic as part of the fixed bridge.
 - D** As seen in the photographs, preparations have been made on the distal portions of the occlusal surfaces of the maxillary second premolars, allowing the removable partial denture clasps to rest in position on the abutment teeth and lend support for the partial denture.
3.
 - A Prosthetic devices and restorations often provide plaque retentive areas that may be difficult for the patient to keep clean, increasing the risk for caries development.
 - B Xerostomia, a risk factor for caries development, is a side effect of the medications taken by this patient.

- C Gingival recession exposes the cemental surface to *Streptococcus mutans* and *Lactobacilli*, the primary organisms associated with root caries. This patient's extensive gingival recession is a significant risk factor for caries.
 - D Plaque is a significant risk factor for root caries. Although this patient is meticulous with oral self-care aids, the oral photographs reveal plaque accumulation in the cervical regions of several teeth. This finding is further supported by the appearance of gingival redness. She may be avoiding brushing cervical areas where root sensitivity presents, therefore allowing the accumulation of microbial biofilm.
 - E** As a lifelong resident in a community with optimal levels of water fluoridation, this patient can expect to experience a significant reduction in the incidence of root caries when compared to individuals who reside in communities with nonfluoridated water supplies. This patient also reports using fluoride rinses along with her dentifrice, further reducing her risk for root caries.
- 4.
- A Frictional hyperkeratosis is a trauma lesion, usually a white patch that results from chronic rubbing of an ill-fitting denture.
 - B An ill-fitting denture may produce a proliferation of flabby hyperplastic tissue. Denture-induced fibrous hyperplasia often results in asymptomatic, single or multiple folds of soft tissue that overgrow the denture flange.
 - C** Denture stomatitis is a local inflammation in response to the partial denture not being removed periodically. Continuous wearing of the partial denture has stressed the tissue. This is especially likely to occur if salivary flow has been decreased, a common occurrence in menopausal women on hormone replacement therapy.
 - D Typical papillary hyperplasia results from denture irritation and occurs under a full denture, in the middle of the palate within the bony ridges leading to the palatal side of the teeth.
 - E The red appearance of the tissue and the rolled outline of the denture embedded in the tissue of the hard palate are indicators that this condition is denture stomatitis. Although it is highly unlikely that trauma from a partial denture will result in squamous cell carcinoma, the patient should be instructed to remove the denture periodically and the area should be monitored after 2 weeks.
- 5.
- A A post-and-core restoration would appear significantly larger (bulkier, wider) than retention pins. Additionally, the post section of this type of restoration would appear to penetrate the pulp chamber, giving support to the tooth upon which a crown may be affixed. To be placed within the pulp chamber, the tooth would show evidence of endodontic therapy; endodontic filling materials would be imaged on the radiographs.
 - B** The radiographs reveal the presence of retention pins that appear as radiopaque thin lines on the radiograph. Retention pins are distinguished from the other materials by their size, shape, and position within the dentin of the teeth. They do not penetrate the pulp chamber or root canal.
 - C Silver points are used as an endodontic filling material. This material would appear to fill the pulp chamber and root canals of the tooth. Silver points appear distinctly radiopaque.
 - D Gutta percha is used as an endodontic filling material. As with silver points, gutta percha would appear to fill the pulp chamber and root canals of the tooth. Gutta percha appears less radiopaque than silver points.
- 6.
- A Conecut or clear, blank areas on the radiograph result when a portion of the image receptor was not exposed to x-rays due to not centering it within the x-ray beam. A cone cut error would appear more uniform, representing the edge of the PID (position indicating device).

- B A radiopaque artifact would result if a metal clasp of the partial denture blocks a portion of the x-ray beam, leaving the area directly behind the metal portion of the denture unexposed. However, the partial denture, if mistakenly left in the patient's mouth during the exposure, would not appear in this region on the radiograph.
 - C Although metal scraps from amalgam will block the x-ray beam and leave a radiopaque artifact on the image, an amalgam fragment, which embeds in the gingiva, would not appear on the edge of the radiograph in this manner or size.
 - D** A radiopaque appearance indicates no exposure to radiation. In this case the metal arm of the image receptor positioner or holding device appears to have blocked a portion of the x-ray beam, leaving the area directly behind the device unexposed.
- 7.
- A Radiographically, the increased radiopacity of the material present on the mesial, occlusal, and distal surfaces of the maxillary right first premolar indicates an amalgam restoration. Metal restorations will appear more radiopaque than composite restorative materials. The slightly less radiopaque cusps are visible superior to the restoration. The use of amalgam in this restoration can be confirmed in the photographs that image a MOD restoration.
 - B Radiographically, the increased radiopacity of the material present on the distal and occlusal surfaces of the maxillary left first premolar indicates an amalgam restoration. Metal restorations will appear more radiopaque than composite restorative materials. The slightly less radiopaque cusps are visible superior to the restoration. The use of amalgam in this restoration can be confirmed in the photographs that image a DO restoration.
 - C Radiographically, the size, shape, and appearance of metal and porcelain indicate a porcelain-fused-to-metal crown present on the maxillary left second premolar. Metal restorations will appear more radiopaque than composite restorative materials and the smooth margins of this radiopacity indicate a crown and not an amalgam restoration (which would have irregular margins). The radiopaque smooth metal outline of the restoration does not contour to the anatomical shape of the tooth. A close examination of the radiographs indicates the presence of slightly less radiopaque porcelain used to shape cusps to restore the tooth to the correct anatomic shape for mastication. The presence of a porcelain-fused-to-metal crown can be confirmed in the photographs.
 - D Radiographically, the size, shape, and appearance of metal and porcelain indicate a porcelain-fused-to-metal crown present on the mandibular left first premolar. Metal restorations will appear more radiopaque than composite restorative materials and the smooth margins of this radiopacity indicate a crown and not an amalgam restoration (which would have irregular margins). The radiopaque smooth metal outline of the restoration does not contour to the anatomical shape of the tooth. A close examination of the radiographs indicates the presence of slightly less radiopaque porcelain used to shape cusps to restore the tooth to the correct anatomic shape for mastication. The presence of a porcelain-fused-to-metal crown can be confirmed in the photographs. The photographs indicate a spot on the occlusal surface where the porcelain has been eroded to reveal the metal portion of the crown.
 - E** Radiographically, the slightly increased radiopacity visible on the distal and occlusal surfaces of the mandibular right second premolar indicates the presence of a composite restoration. This finding can be confirmed in the photographs, which image a tooth-colored MODL restoration.

8.
 - A** The classic appearance of the mental foramen is a round or oval radiolucency located near the mandibular first or second premolar. A close examination of the radiographs indicates that the lamina dura of the first premolar is intact, separating the round radiolucency from the apex of the tooth. This separate radiolucency is not associated with the tooth and should not be confused with apical pathology.
 - B It is possible for a residual cyst to be located in this area of the missing mandibular second premolar. A cyst often appears radiographically as a round radiolucency. However, the classic appearance of the mental foramen in this area of the mandibular first or second premolar must be considered first. A cyst, if present in this area, would most likely appear in addition to the mental foramen and not in place of it. Additionally, careful examination of the radiograph of the mandibular right first and second premolar region reveals a similar looking round radiolucency. Comparing both the left and right radiolucencies can be helpful in determining the presence of a normal anatomical landmark such as the mental foramen.
 - C,D It is usually not possible to distinguish a periapical abscess and granuloma based on radiographic findings alone. A histological examination would be required. However, both these pathological conditions would be distinguished from the mental foramen by an examination of the lamina dura of the bony tooth socket. The cortical plate of bone that makes up the lamina dura would appear to engulf the radiolucency when a pathological condition presents. A close examination of the radiographs indicates that the lamina dura of the first premolar is intact, separating the round radiolucency from the apex of the tooth. This separate radiolucency is not associated with the tooth indicating the mental foramen, which should not be confused with apical pathology.
9.
 - A A periodontal abscess may be imaged radiographically as a large diffuse radiolucency in a lateral position to the tooth. A periodontal abscess is not evident on these radiographs.
 - B** When assessing bone loss evident on radiographs, it is important to determine whether the bone loss is horizontal or vertical. Use the CEJ (cemento-enamel junction) of adjacent teeth to form an imaginary line. When bone loss is parallel to this imaginary line connecting adjacent teeth at the CEJ, horizontal bone loss is indicated. When the bone loss is not parallel, but angular to the imaginary line connecting adjacent teeth at the CEJ, vertical bone loss is indicated. In the area distal to the mandibular right first molar, the crestal bone is angular and therefore considered to be vertical bone loss.
 - C Furcation involvement would appear as a radiolucency between the roots of multirrooted teeth. The mandibular right first molar does not appear to have bone loss involving the furcation region.
 - D Horizontal bone loss is associated with several other teeth. However, in the area distal to the mandibular right first molar the crestal bone loss appears angular and therefore is considered to be vertical bone loss. The bone loss in this region is not parallel to an imaginary line connecting the mandibular right first and second molars at the CEJ indicating vertical bone loss.
10.
 - A Allowing time for adjustment to a change in chair position may help avoid orthostatic hypotension of which the occurrence is an adverse effect of the drug Cardizem.
 - B Considering this patient's history of syncope, having ammonia capsules available would allow the dental hygienist to arouse an unconscious patient, thus avoiding a more serious situation.
 - C** This patient does not present with a condition indicating a need for antibiotic prophylaxis.

- D The dental professional can help avoid an emergency situation by requiring that this patient bring the nitroglycerine to the appointment in case an angina attack were to occur.
 - E Given this patient's history of syncope and ischemic heart disease, care should be taken to provide a stress-free environment to avoid a fainting episode or the onset of an angina attack.
11. A,C Periodontal maintenance appointments should include removal of biofilm. The purpose of deplaquing and removing calculus is to disrupt the biofilm and create an environment that contributes to a reduction in inflammation.
- B** Periodontal maintenance instrumentation for this patient should be limited to deplaquing and instrumental debridement that results in a favorable tissue response. Scaling should be limited to removing detected calculus deposits. Scaling the exposed root surfaces would unnecessarily remove cementum.
 - D All areas of the mouth must be reprobated at the periodontal maintenance appointment to determine the progression or stabilization of the disease.
 - E Periodontal maintenance depends on patient compliance with self-care and her ability to be effective. This patient's level of effectiveness with daily oral self-care must be determined at each periodontal maintenance appointment.
12. A One of the adverse effects of estrogen is an increase in nervousness.
- B This patient presents with a history of past dental experiences that involved pain where her response was fainting. It can be expected that these past experiences will affect her response and apprehension levels regarding today's visit.
 - C This patient's need to be self-reliant may be adding to her overly enthusiastic apprehension regarding her ability to control her reactions to treatment.
 - D This patient reports that pain experienced at past dental appointments caused her to faint. Lack of pain control can contribute to her dental anxiety.
 - E** Vital signs such as blood pressure may be an indicator of a patient's anxiety levels but not the cause.
13. A Oral benzodiazepines such as diazepam have a wide margin of safety when prescribed appropriately. In fact, orally ingesting 2 to 5 mg diazepam will highly reduce the patient's perception of pain and level of anxiety; both are considered mandatory for successful management of the patient with ischemic heart disease and significantly sensitive root surfaces.
- B The use of nitrous oxide would not compromise any of the medications this patient is taking nor would it be contraindicated when nitroglycerin is administered. When combined with drugs producing oral sedation, nitrous oxide has the potential to induce unconscious sedation. The dental hygienist must be prepared for this potential.
 - C The topical application of benzocaine would be contraindicated for patients with a history of allergy or a sensitivity to ester-type anesthetics. This patient's medical history does not indicate a past allergic response to benzocaine.
 - D** Oraqix® contains 2.5% lidocaine and 2.5% prilocaine. The effect of prilocaine in combination with nitroglycerin may increase the risk of developing methemoglobinemia, a condition that reduces the ability of the blood to circulate oxygen. Although this patient is not currently taking nitroglycerin, it should be available for use during the appointment should a medical emergency arise. The possible need for nitroglycerin should be considered a caution for use of Oraqix.
 - E The patient's medical history does not note a sensitivity to amide anesthetics. In fact, mepivacaine 3% does not contain vasoconstrictors, the use of which should be limited in patients with angina pectoris.

14. A Although gingival diseases have been linked to medications, drug allergies are not associated with increased risk for periodontal breakdown. This patient's tetracycline allergy is not a risk factor for her periodontal condition.
- B** Periodontal diseases have been linked to endocrine changes. Hormonal therapies based on estrogens and progestin have an influence on the inflammatory response of periodontal tissues.
- C** Restorations with poorly contoured or rough margins that make oral self-care difficult and lead to plaque retention are considered a local contributing factor for periodontal disease. This patient has several large restorations that appear bulky and may be difficult to clean around.
- D If this patient experiences reduced mobility or other disabling condition in her dominant hand as a result of her shoulder surgery, this could possibly lead to a diminished ability to perform effective oral self-care, which in turn can increase her risk for developing periodontal disease. However, if this were the case, the risk factor for developing periodontal disease would be the inadequate self-care and not the surgery.
- E** The removable partial denture is considered an iatrogenic risk factor (caused by the intervention of the dentist) that makes effective removal of plaque biofilm more difficult.
- F** Medications that contribute to xerostomia such as diclofenac (Voltaren) and diltiazem HCL (Cardizem) and hormone replacement drugs that have the potential to exacerbate gingivitis and bleeding are considered risk factors for periodontal disease.
- G** Because prolonged physical and/or psychological stress is a risk factor for periodontal diseases, this patient's life-changing situation (coping with the death of her husband) is likely to increase her susceptibility.
- H Females tend to have a lower prevalence of periodontal disease compared to males.
- I** This 53-year-old belongs to a cohort with an increased risk of periodontal disease.
15. A,C,E These answers are incorrect, as explained next.
- B The amount of recession in this area is 4 mm. The measurement of the recession alone (without the pocket depth) is not an accurate measurement of the total loss of attachment in this area.
- D** The clinical attachment level is determined by the probe depth and assessment of the position of the gingival margin in relation to a fixed point, the CEJ. When recession is present, the attachment loss is equal to the amount of recession plus the periodontal probe depth reading. With 4 mm of recession and a 2-mm facial probing depth, the loss of attachment would be 6 mm in this area.
16. A Although the probe reading at the facial of the maxillary right first premolar increased from 1 mm at the initial appointment to 2 mm at the reevaluation appointment, there appears to be a significant amount (more than 2 mm) of attached gingiva in this region.
- B The maxillary right lateral incisor appears to have several millimeters of attached gingiva between the mucogingival line and the free gingival margin. Additionally, the probe reading on the facial of this tooth is only 1 mm.
- C Based on the location of the mucogingival line and the 1-mm probe reading at the facial point of the maxillary left second premolar, there appears to be 1 or 2 mm of gingival attachment in this area without an indication of bleeding. At least 1 mm of alveolar gingiva without bleeding is generally considered to be a sufficient indicator of gingival health. While this location may be at risk for future mucogingival involvement, the mandibular right lateral incisor is presently at a greater risk.

- D Even though the appearance of the facial gingiva of the mandibular left first molar is significantly bulbous, the 1-mm facial probe reading and the location of the mucogingival line indicate a significant amount of attached gingiva, putting this tooth at less risk for mucogingival involvement.
- E** Mucogingival involvement is determined by measuring the width of attached gingiva and subtracting the periodontal probe reading. When the resulting measurement is less than 1 mm, mucogingival involvement occurs. The mandibular right lateral incisor exhibits apparent recession that has progressed almost to the mucogingival line. With a 2-mm pocket depth at both the initial and reevaluation appointments, this area is most at risk for mucogingival involvement.
17. A,B,C,D These teeth do not have sufficient pocket depths for placement of locally applied drug therapies.
- E** With an 8-mm pocket that did not decrease at the 6-week reevaluation appointment, the mandibular right first molar is an ideal candidate for locally applied drug therapy. The evidence that this area did not positively respond to mechanical therapy makes local drug delivery an ideal optional treatment for this region.
18. A Minocycline hydrochloride (syringe-delivered Arestin) contains derivatives of tetracycline as the active ingredient and therefore is contraindicated for this patient.
- B Doxycycline hyclate (syringe-delivered Atridox) contains derivatives of tetracycline as the active ingredient and therefore is contraindicated for this patient.
- C** Because the patient is allergic to tetracycline, 2.5 mg chlorhexidine gluconate (PerioChip delivered in a resorbable gelatin wafer) is the only medicament listed that is not contraindicated for this patient.
- D Actisite contains fibers that deliver tetracycline directly to the pocket. The patient's tetracycline allergy contraindicates its use.
19. **A** This patient's lifelong residence in a community with optimal levels of fluoride in the water would not add to the reasons for recommending fluoride therapies.
- B The areas of demineralization represent the initial stage of caries development. Fluoride therapy may assist with remineralization that leads to prevention of the development of frank carious lesions.
- C The large number of exposed root surfaces are at risk for caries, indicating that fluoride therapy should be recommended for this patient.
- D Dry mouth or xerostomia plays a role in the increased incidence of dental caries. The medications this patient is taking, combined with stress and menopause, will have a demonstrated risk for changes in salivary composition and decreased salivary flow or drying oral conditions indicating that fluoride therapies are a good recommendation for this patient.
- E Multiple and complex restorations make plaque control difficult, adding to the risk for dental caries. Additionally, a primary risk factor for future caries is the presence of caries. This patient's history of decay indicates that she is at risk for future decay and would benefit from fluoride therapies.
20. A Use of 1 ppm fluoridated water is recommended for all patients regardless of caries risk.
- B A daily low-potency 520-ppm fluoride rinse is recommended for patients with moderate caries risk.
- C Weekly high-potency 900-ppm fluoride rinses are primarily used in school-based programs for children with moderate to high risk for caries.

- D** Brush-on 1,000- to 1,500-ppm fluoride gel is recommended for this patient with a high caries risk.
21. A,C,D,E Each of these chemical agents is found in professional treatments and not in self-applied agents available for home use.
- B** Potassium nitrate is the active ingredient found in at-home-use toothpaste with the American Dental Association (ADA) seal for treatment of hypersensitive teeth.
22. **A** Night guard therapy is recommended to reduce the parafunctional habit of nocturnal bruxism and can help prevent further tooth mobility resulting from a decreased functional demand. An additional potential outcome of this therapy would be arrested periodontal destruction in the area.
- B,C Biofeedback and therapeutic massage will help the patient reduce bruxism but will not provide treatment for tooth mobility.
- D Splinting the teeth will provide stabilization of tooth mobility; however, it does not eliminate the bruxism and attrition that will continue to occur.
23. A Autonomy is defined as self-determination. After informing the patient about the effects and consequences of treatment, the patient has the right to accept or refuse the procedure.
- B Beneficence means doing what will benefit the patient. An ethical dental hygienist will be compelled to design treatment plans (in this case, thorough instrumentation of all areas necessary for comprehensive periodontal maintenance) that benefit the patient.
- C** The definition of nonmaleficence is to do no harm to the patient. By not doing something (instrumenting all areas necessary), the dental hygienist may in fact cause harm (progression of periodontal disease).
- D Justice or fairness refers to providing all people—regardless of ethnicity, socioeconomic standing, and education level—access to quality preventive oral hygiene care.
- E Fidelity is the belief that the dental hygienist is morally obligated to keep promises and commitments communicated or implied.
24. A This patient's blood pressure is considered within normal limits.
- B** The patient's chief complaint, especially when the need is freedom from pain, should be addressed first.
- C Immediately after addressing the patient's chief complaint, the treatment plan should address eliminating or reducing predisposing factors for periodontal disease such as nocturnal bruxing.
- D Providing the patient with a new soft toothbrush and self-care instructions would occur after conditions that predispose the patient for periodontal disease are eliminated or reduced.
- E The periapical radiographs supplement the horizontal bitewings by providing adequate information regarding the periodontium. It is not necessary to expose the patient to additional radiation at this appointment. At a future appointment, when radiographic need is assessed, vertical, instead of horizontal, bite-wings would provide an increased image of the supporting bone.
25. A Allowing the patient to stop treatment at any time will help give her a sense of control. However, this action may not be enough to eliminate her anxiety based on her past dental experience that predisposes her to anticipate pain at this appointment.
- B,D Relaxation and distraction techniques are effective for some patients. However, based on her past dental experience that predisposes her to anticipate pain at this appointment, recommending the dentist prescribe an antianxiety pre-medication oral sedative may be the better action for managing this patient's anxiety.

- C** Reduction of anxiety is important for successful management of the patient with angina pectoris to avoid a medical emergency during treatment. This patient presents with a dental experience history that predisposes her to anticipate pain at this appointment. Therefore, consultation with the dentist regarding a prescription for an antianxiety premedication oral sedative would most likely manage this patient's anxiety.
- E Careful instrumentation is paramount in helping reduce pain during instrumentation. However, based on her past reaction (syncope) to dental treatment, recommending the dentist prescribe an antianxiety premedication oral sedative may be the better action for managing this patient's anxiety.

CHAPTER 7 CASE E LOUIS RIDDICK

1.
 - A,E When underjet or anterior crossbite present, the maxillary anterior teeth are in a position lingual to the mandibular anterior teeth.
 - B In an edge-to-edge relationship, the anterior teeth occlude on the incisal edge.
 - C An open bite indicates a lack of contact (vertical opening) between the maxillary and mandibular anterior teeth.
 - D** Overjet, underjet, and anterior crossbite refer to the horizontal distance between the labioincisal surfaces of the maxillary anterior teeth and the linguoincisor surfaces of the mandibular anterior teeth. When overjet presents, the maxillary anterior teeth are in a position labial to the mandibular anterior teeth as evidenced on the study model taken on this patient.
2.
 - A** Normal melanin pigmentation occurs in persons of color and should not be mistakenly identified as a disease or condition requiring attention. This patient does not present with additional symptoms or a history of pain associated with these regions of the mouth.
 - B Normal melanin pigmentation should not be mistaken for smoker's melanosis, a brownish discoloration of the oral mucosa that usually occurs in the mandibular anterior region.
 - C The chronic inflammatory disease, lichen planus, causes bilateral white striations, papules, or plaques on the buccal mucosa, tongue, and gingivae. Erythema, erosions, and blisters may or may not be present.
 - D Possible clinical presentations of contact stomatitis include erythematous lesions, erosions/ulcerations, leukoplakia-like lesions, oral lichenoid reactions, contact urticaria, and burning mouth syndrome contact stomatitis. This patient does not present with clinic symptoms associated with the dark appearance of the facial gingiva.
 - E Oral lesions associated with discoid lupus erythematosus usually appear on the buccal mucosa as small (less than 1 cm), painful aphthous ulcerations. The lesions tend to last up to 2 to 3 weeks.
3.
 - A Although the patient presents with a tongue thrust, this condition may be contributing to his pronounced overjet through forces inflicted anteriorly, but not the diastema that is the result of forces inflicted laterally.
 - B The enlarged papilla, unlike the frenal attachment, is not involved in mechanical movement and therefore would not be exerting force on the tooth structure to cause displacement.
 - C Destruction of bone and the development of infrabony defects as the result of periodontal disease will cause tooth mobility and displacement. However, probe depths and radiographic assessment of the maxillary central incisors do not reveal conditions conducive to distal drift of these teeth.
 - D Although a growing cyst or tumor may indeed displace structures in its path, the radiolucency between the maxillary central incisors is the incisive foramen and should not be mistaken for a pathologic condition.

- E** The maxillary frenum functions to hold the lip in place. The size and location of the labial frenal attachment may affect the position of the maxillary central incisors laterally. This band of connective tissue is so firm that erupting central incisors may not penetrate through it, but will be pushed aside so that a diastema results.
4. **A** Leukoedema, Fordyce's granules, nicotinic stomatitis, and candidiasis can usually be distinguished by their characteristic appearances and the location in which they are noted. Leukoedema, found in approximately 80% of the black population, appears as a milky, white-blue striated lesion of the buccal mucosa. Leukoedema is considered normal and no treatment is necessary.
- B** *Leukoplakia* is the term given to white patches found intraorally that usually cannot be clinically identified as a specific disease entity. Although smoking may have initiated the epithelium in this area to increase in thickness, trauma created by movement of the upper lip over this tissue could also produce the hyperkeratinization. The etiology may not be readily discernable and a histological exam may be ordered for differential diagnosis.
- C** Candidiasis, representing the overgrowth of *Candida albicans*, may result when the normal flora of the oral cavity is altered as when the patient is taking antibiotics, is immune suppressed, presents with endocrine diseases, or has a hereditary predisposition to fungal infections. The white lesion associated with pseudomembranous candidiasis may be easily wiped off with gauze.
- D** Nicotinic stomatitis can result in hyperkeratosis of the mucosa of the hard palate in response to the heat introduced into the oral cavity from smoking. The palate usually appears white with small red points.
- E** Fordyce's granules, sebaceous glands choristomas, appear yellow in color and are usually found near the maxillary vermilion border and labial mucosa. Fordyce's granules are considered normal and no treatment is necessary.
5. **A** The mental foramen may be imaged on a mandibular periapical radiograph near the apex of the mandibular first or second premolar.
- B** Because of its posterior–superior location in the ramus of the mandible, the mandibular foramen may appear on a panoramic radiograph, but not on an intraoral radiograph.
- C** The incisive foramen is anatomically located between the maxillary central incisors.
- D** The lingual foramen may be imaged on a periapical radiograph of the mandibular anterior region. The lingual foramen often appears as a small radiolucent dot within the radiopaque circle of genial tubercles.
- E** Because of its superior location, the infraorbital foramen may be imaged on a panoramic radiograph, but not on an intraoral radiograph.
6. **A** If significantly dense, calculus deposits will appear on radiographs about the same radiopacity as dentin. This deposit located in the furca appears as a “bump” or spur between the roots of the tooth.
- B** Pulp stones present within the pulp chamber.
- C** Although an enamel pearl may present in this area between the roots, it would appear the same radiopacity as enamel and would be attached to, or appear as an extension of, the enamel.
- D** Hypercementosis would appear as a radiopaque overgrowth of excess cementum creating an enlarged or bulbous root structure.
- E** Composite restorations would not be placed in this area and would appear in a prepared cavity within the tooth structure rather than an attachment to the root.

7.
 - A A nonvital tooth may take on a darkening appearance. However, the hue produced by this tooth is the result of the large metallic restoration showing through the thin enamel.
 - B Staining from systemic ingestion of tetracycline would affect all teeth that were forming at the time of ingestion, and not this single tooth.
 - C Dentinogenesis imperfecta is a developmental disturbance affecting the dentin that usually produces thinner than normal enamel. Although dentinogenesis imperfecta can result in a translucent blue-gray hue to the teeth, all teeth that were forming at the time of the disturbance would be affected, and not this single tooth.
 - D** The radiographs reveal that this tooth has been restored with endodontic filling material and a metallic restoration. The dark metal materials appear to be showing through the thin enamel, giving the tooth the gray hue.
 - E Hypocalcified enamel results from a defect of the ameloblast of the enamel and the affected tooth fails to develop to its normal thickness resulting in a yellow-brown hue, and enamel pitting or roughness. The tooth may also appear smaller in size than a normal tooth. However, this condition should not be mistaken for the appearance of metallic restorations through the enamel as demonstrated by this tooth.
8.
 - A This patient does not present with a need for application of desensitizing agents.
 - B** To help the patient meet his goals of improving oral health and to encourage success of nonsurgical periodontal intervention, the first step must be patient education in the disease process and explicit instruction in oral self-care. Before any therapeutic intervention, instruction in oral self-assessment and discussion of the relationship between preventive measures and periodontal disease must occur.
 - C The difficult prognosis of the furcation involvement of the maxillary first molars makes extraction a likely treatment. However, the patient has not presented with pain at this initial appointment; therefore, before any treatment occurs, a comprehensive treatment plan should be discussed with the patient.
 - D The success of periodontal scaling and root debridement depends on the role the patient plays in oral self-care on a daily basis. Prior to treatment, this patient must understand this role, be interested in the treatment plan, and be motivated to comply with recommendations.
 - E The most likely diagnosis of the white patches is leukoplakia and not a fungal infection. Because smoking is most likely the cause, the area should be monitored to see if the tissue improves now that this patient has stopped smoking. If available, a brush-biopsy can remove a few cells for testing to determine if cancer cells are present, or the patient may be referred to an oral pathologist for a biopsy.
9.
 - A Because the power toothbrush is a new self-care aid for him, his skill at using this device should be reinforced. He may be less motivated to listen to manual brushing instructions, knowing that he will be using the power toothbrush at home.
 - B,C At this time, reinforcing the use of his new power brush would be more likely to produce better results. The spaces between his teeth suggest that an interdental brush, which could be introduced after he masters power brush instructions, may be more effective than floss or an end-tuft brush.
 - D An interdental brush would be ideal to introduce after this patient masters the use of his new power brush. However, simply providing a brochure is not likely to inspire this minimally motivated patient to begin to use this new device effectively.

- E** This patient reports that he recently began using a power toothbrush. Because effective use of a power toothbrush requires practice, his technique with this device should be evaluated versus teaching him another new method or aid at this time.
10. **A** Although furcation involvement is present, it is the result and not the cause of the hypereruption of the maxillary molars.
- B** The length of the junctional epithelium (1 to 2 mm in coronal dimension) is not responsible for the supereruption of the teeth. As this patient's molar teeth continue to erupt, the junctional epithelium migrates down the root surfaces, exposing more of the root surfaces of the teeth.
- C** Loss of mandibular teeth may result in the hypereruption of the opposing maxillary teeth.
- D** This patient has no history of surgical intervention for periodontal disease.
- E** Attached gingival widths vary among patients naturally and as a result of periodontal diseases. The amount of attached gingiva on these molars is not related to the supereruption of these teeth.
11. **A** The calibrated markings on this instrument indicate that it is a probe. The curved working end and insertion into the furcation area shown in the photograph indicates that this instrument is a furcation probe. A furcation probe is used to gauge the depth of penetration through the furcation area of periodontally involved teeth.
- B** A treatment instrument such as a scaler or curet does not have the calibrated markings of a probe. Additionally, the instrument in the photograph would demonstrate a shank that terminated into a working end that would appear balanced or centered in line with the long axis of the instrument handle.
- C** Explorers do not have the calibrated markings of a probe. Additionally, the tactile sensitivity required for the detection of calculus requires that an explorer be thin, slender, and wirelike.
- D** Periodontal probes used to measure pocket depths contain calibrated markings. However, these instruments have a straight, tapered, round shank and working end. A periodontal probe used to measure pocket depths would be adapted so that the side of the probe tip is inserted into the pocket with the terminal shank parallel to the long axis of the tooth.
- E** Subgingival irrigation agents are introduced into periodontal pockets via a cannula attached to a syringe or an air-driven handpiece.
12. **A,B** When the alveolar bone crest does not appear parallel to an imaginary line imaged on radiographs connecting adjacent teeth at the CEJ (cemento-enamel junction), the bone loss is considered vertical or angular.
- C** Dehiscence refers to bone loss that manifests as a resorbed cleft, a condition not associated with these teeth.
- D** Fenestration refers to bone loss that creates an opening or "window" through the bone covering the facial root surface, a condition not associated with these teeth.
- E** Horizontal bone loss is differentiated from a vertical or angular defect by comparing the bone crest imaged on radiographs to an imaginary line connecting adjacent teeth at the CEJ. When the alveolar bone crest appears parallel to this imaginary line, horizontal bone loss is noted.
13. **A** Grade I furcation involvement is characterized by a detectable depression in the furcation opening. Radiographic changes are not evident at this early stage.
- B** Grade II furcation involvement is characterized by bone loss that allows the probe to detect a cul-de-sac under the dome of the furcation. Radiographs may or may not depict the involvement at this stage.

- C Significant bone loss in the furcation area in which the bone is not attached to the roof of the furcation and the probe may pass through the roots is classified as a Grade III. However, soft tissue would prevent clinically visualizing the furcation.
- D** In the 1950s, Glickman developed a classification of furcation involvement identified by grades. Significant bone loss in the furcation area in which the bone is not attached to the roof of the furcation and the probe may pass through the roots is classified as a Grade III. If the soft tissues have receded apically so that a Grade III furcation involvement is clinically visible, then Grade IV is the appropriate classification. Although plaque appears to block this area, the photograph of the maxillary right first molar appears to reveal a Grade IV furcation involvement.
14. 1. **C** The Gracey 11/12 curet is designed specifically for instrumentation of the mesial surfaces of posterior teeth. The extended shank design allows this instrument to access the 6-mm periodontal pocket here.
2. **B** The Gracey 9/10 curet is designed specifically for instrumentation of the facial and lingual surfaces of molars. The standard design is sufficiently rigid for the removal of the light to moderate calculus in the shallow pockets in this region.
3. **A** The Gracey 1/2 curet is designed specifically for instrumentation of the anterior teeth. The standard design is sufficiently rigid for the removal of the light to moderate calculus in the shallow pockets in this region.
4. **E** The Gracey 17/18 curet with its accentuated shank angles is designed specifically for instrumentation of the distal surfaces of posterior teeth. The longer and stronger rigid shank design allows this instrument to effectively remove moderate to heavy tenacious calculus located here.
5. **D** The Gracey 13/14 curet is designed specifically for instrumentation of the distal surfaces of posterior teeth. The micro mini, ultra slender and increased rigidity, is designed specifically for instrumentation in the deep, difficult to access pocket and furcation located here.
15. A Because the pocket depth was 5 mm at the initial appointment, it would be tempting to say that the initial clinical attachment level was 10 mm. However, we do not know what the position of the free gingival margin was at that appointment.
- B** The clinical attachment level is calculated by measuring (in millimeters) the distance from the CEJ to the free gingival margin and by measuring the pocket depth. The recession and the pocket depth measurements are added together. The sum is the total loss of attachment. The facial surface of the maxillary right first molar demonstrates 4 mm of recession plus a 5-mm pocket depth at the reevaluation appointment. Therefore, the measurement of the clinical attachment level at the reevaluation appointment is 9 mm.
- C This answer is not correct. See previous explanation.
- D The pocket depth at the initial appointment was 6 mm. Pocket depth alone is not a measurement of clinical attachment level.
- E The pocket depth at the reevaluation appointment is 5 mm. Pocket depth alone is not a measurement of clinical attachment level.
16. A This tooth has undergone endodontic therapy. This procedure is limited to the pulp chamber and does not have an implication in periodontal disease.
- B,D,E Overhanging restorations, caries, and occlusal trauma are all local contributing factors for periodontal disease. However, these conditions are not evident in this area.
- C** The concave root morphology on the mesial surface of the maxillary first premolar provides a protected environment for bacteria to accumulate. The severity of the concavity is demonstrated on the radiographs.

17. **A** The significant loss of supporting bone associated with periodontal disease is responsible for the mobile teeth.
- B Although some systemic diseases, such as diabetes mellitus and HIV/AIDS, are systemic contributing risk factors for periodontal diseases, which in turn are responsible for tooth mobility, hypertension is not related to the condition of the periodontium.
- C Although various conditional forces may over time move or change the position of teeth, the mobility experienced by this patient is the result of significant loss of supporting bone associated with periodontal disease and not the result of a slight tongue thrust habit.
- D Loss of permanent teeth may cause adjacent teeth to shift position. The patient reports that several teeth were extracted many years ago. Mobility during the shift of adjacent remaining teeth may have occurred at that time. Any mobility detected at this appointment is the result of bone loss caused by periodontal disease.
- E Tooth mobility is not an adverse effect of Nicorette.
18. A Although this patient's brushing habits have not been effective at plaque control, studies have indicated that even when self-care is ideal, smokers exhibit deeper periodontal pockets and significantly more bone loss than nonsmokers with similar self-care abilities.
- B This patient is not taking any medication associated with an adverse effect of increasing risk for periodontal diseases.
- C Stress can elevate susceptibility to periodontal diseases, but it is highly unlikely that stress plays a role in this patient's life. The greater risk from this list is smoking.
- D Prehypertension is not associated with an increased risk for periodontal diseases.
- E** It has been established that tobacco smoking may be the most important environmental factor in the United States associated with periodontal disease.
19. A The photographs reveal gingival tissue that appears edematous and bulbous. An expected outcome of removal of calculus and disruption of biofilms at the reevaluation appointment is tissue shrinkage, possibly accompanied by recession resulting in a 1- to 2-mm reduction in pretreatment probing depths.
- B Debridement results in a renewal of epithelial cells in contact with the tooth surfaces to improve integrity of the clinical attachment demonstrated at the reevaluation appointment.
- C Following scaling and root planing, healing takes place by the formation of a long junctional epithelial attachment resulting in a closure to the pocket.
- D** Regeneration of new bone, cementum, and periodontal ligament is a more likely outcome of periodontal surgery.
- E Following calculus removal and disruption of biofilms, reformation of gingival collagen may stop the probe tip at a more coronal point in the pocket, resulting in a reduction in probe readings.
20. **A** Maintenance appointment intervals as short as 1 month should be recommended for this level of disease. Aggressive attachment loss and the patient's ability to perform effective plaque control will need to be monitored. Additionally, success with smoking cessation has not yet been established.
- B,C Research indicates that patients with a history of periodontal disease should be on a maintenance schedule that is no longer than 4 months. However, based on the severity of the periodontal condition this patient presents with, he should be monitored in 1 month.

- D,E Patients with a history of periodontal disease should be on a maintenance schedule that is no longer than 4 months.
21. A Essential oils are effective at reducing bacterial plaque and gingivitis but with less substantivity than chlorhexidine gluconate. Less substantivity requires more frequent use for optimal results, in turn requiring a bigger commitment from the patient to comply with recommendations.
- B Zinc chloride has been used in many products to reduce the formation of calculus and reduce mouth malodor. Limited studies are available that substantiate the link between using these products and an effective reduction in bacterial plaque.
- C Evaluation of cetylpyridinium chloride products currently on the market has produced mixed results on their efficacy. Given this patient's advanced periodontal condition, recommending an agent with proven efficacy would be the better choice.
- D** Currently chlorhexidine gluconate is the most effective antiplaque and antigingivitis agent approved for short-term clinical use.
- E Although demonstrated to be a temporary debriding agent in the oral cavity, especially for conditions such as acute necrotizing ulcerative gingivitis and periocoronitis, the use of hydrogen peroxide as an antiplaque/antigingivitis agent has not been confirmed.
22. A To get the maximum benefit from nicotine gum, the patient may need to be reminded of the instructions on its use. Nicotine gum should be used whenever the urge to smoke occurs. Nicotine gum should be chewed slowly for 30 minutes and then "parked" inside the cheek against the oral mucosa. Every few minutes, he may repeat slow, gentle chewing.
- B** Because nicotine addiction is so difficult to overcome, positive reinforcement and complimenting the patient on his success so far can often be an impetus to continued success.
- C Slipping, or smoking again, can be very discouraging to the patient trying to quit. Making the patient aware that he can try to stop again, and has not failed, if he smokes one or a few cigarettes, may provide needed motivation.
- D Overcoming nicotine addiction can be especially difficult in the beginning, because it may take 1 or 2 weeks for withdrawal symptoms to subside. Providing the patient with this information along with encouragement and support from the dental hygienist will aid in his success.
- E This negative approach will most likely stimulate patient denial and may result in tuning out advice.
23. A As tissue shrinkage takes place, recession and papillary shape changes can result in the appearance of a longer clinical crown. The patient should be educated regarding this possible outcome.
- B It is important that the patient understand the healing process that follows scaling and root planing. Increased dentinal sensitivity as a result of tissue shrinkage that exposes root surfaces can play a role in patient compliance with self-care and satisfaction with treatment. Additionally, the patient needs to be aware that treatment is available should this condition arise.
- C Because this patient reports that tooth mobility prompted him to make this initial appointment, he needs to be prepared for a possible increase in tooth mobility following treatment. The dental hygienist must be sure that effective communication occurs regarding this possibility.
- D** It is important that the patient understand the possible outcomes of his treatment, especially when changes to the oral cavity are likely. This patient may not be expecting to experience a possible change in the appearance of gingival

tissues or possible discomfort from roots exposed by gingival recession. He should be prepared for these outcomes. Although statistics on success rates of treatment should be considered when treatment planning for the patient, this is not an outcome of his treatment.

- E As tissue shrinkage occurs, additional blunting of papillae is likely. The patient must be made aware not only of the possible change in appearance of the gingiva, but also of methods to clean these areas. The dental hygienist must stress the importance of patient compliance with self-care that will be required following treatment.
24. A There is a possibility that tooth mobility will increase following scaling. The dental hygienist should be cautious about offering false assurance, especially given the periodontal involvement exhibited by this patient.
- B Given the periodontal involvement of both maxillary first molars, the prognosis is less than ideal, indicating a possible need for extractions. However, the dental hygienist should refrain from making this dental diagnosis. Instead, the patient should be referred for evaluation.
- C** The dental hygienist is educated to make decisions to recommend referrals to other professionals. The type and severity of the periodontal condition this patient presents with and the presence of periodontal pockets greater than 5 mm at the reevaluation appointment indicate a necessity to be evaluated by a periodontist.
- D The wording of this statement is outside the realm of the dental hygienist's scope of practice. Additionally, having recently undergone a complete physical by his physician, and taking into consideration the diagnosis of prehypertension, his physician's recommendations are sound. If the dental hygienist discovers something incongruent with the physician's recommendations and dental hygiene treatment, the physician can be contacted for clarification, or the patient may be referred back to the physician for evaluation.
- E Implants may indeed be an option for this patient, but the dental hygienist should be cautious about offering false assurance, especially given this patient's circumstances, such as the severity of active periodontal disease, lack of established smoking cessation at this point in time, and need for an assessment by a periodontist.
25. **A** This patient may be reluctant to accept preventative treatment because he does not see himself as someone who invests time and money in dental treatment. The dental hygienist can help him make a connection between what steps he takes now toward good oral health and how this will contribute to maintaining his oral health in the future. Voicing confidence in the patient's abilities can help him take responsibility for what happens to his teeth and will encourage him to accept the recommended treatment plan.
- B Blaming the patient for his periodontal condition and for failing to deal with the worsening condition is not likely to contribute to a change in his behavior to comply with treatment.
- C The patient should not be pushed into treatment decisions before he has an understanding of the situation, has agreed that he has a need, and can value the treatment enough to be able to comply.
- D Threatening the patient with negative consequences may cause him to tune out the message. This is especially true when the patient is not in pain, or does not perceive his poor oral health as causing him any immediate discomfort.
- E Humor, when used correctly, can contribute to developing a rapport with this easy-going patient. However, at this point the dental hygienist would not want to validate the patient's point of view, possibility casting a negative shadow over the need for extensive, and possibly expensive, treatment.

CHAPTER 8 CASE F

BANU RADPUR-ANSARI

1.
 - A An overgrowth of bone, or bony exostosis, beginning in the midline of the palatal vault would be indicative of a torus palatinus.
 - B** The term *ruga* means a ridge or fold. Although seemingly pronounced in this view of the palate, this is the normal appearance of palatal rugae.
 - C There are no major salivary glands located in this region.
 - D The normal appearance of the rugae should not be confused with pathology. Blisterform lesions would appear as fluid-filled pustules or vesicles.
 - E Although trauma that may occur when eating very hot or crunchy foods can sometimes irritate this region of the palate, there is no evidence of irritation.
2.
 - A Erosion refers to the wearing away of the tooth structure via chemical means.
 - B Abrasion refers to a wearing away of the tooth structure by forces other than mastication. This term is most often applied to wear that results from incorrect tooth brushing.
 - C** Attrition refers to the wearing away of the tooth surface via tooth-to-tooth contact or chewing habits that include nail biting and chewing course foods. In this case uneven, moderate wear is exhibited on the incisal edges of both the maxillary and mandibular teeth.
 - D The incisal edges of these teeth present with wear that should not be mistaken for caries activity.
 - E Abfraction presents as a wedge-shaped notch in the cervical region of the tooth, often resulting from parafunctional occlusion.
3.
 - A** Because the opposing maxillary teeth have been extracted, the possibility exists that the mandibular teeth will supererupt into an extruded position.
 - B Ankylosed teeth remain embedded, or fused to the supporting bone. Teeth that are ankylosed usually do not fully erupt into their natural position in the arch.
 - C Both the mandibular right second and third molars appear to be fully erupted into their natural position. Neither one of these teeth is impacted, or embedded in the bone.
 - D A dilacerated crown or tooth root appears as a sharp bend or curve. It is thought to result from physical disturbance to the tooth while it is forming, although the exact cause is unknown. Since dilacerations are not evident radiographically they will not develop now that the teeth are fully formed and erupted in place.
 - E Fusion occurs when unerupted adjacent teeth become joined with cementum. Since fusion is not evident radiographically it will not develop now that the teeth are fully formed and erupted in place.
4.
 - A The size of the distal occlusal defect on the mandibular right first molar would indicate caries as the reason for food impaction. Mobility is not noted in this region.
 - B Blunted papilla can contribute to food accumulation in the embrasures. However, the size of the distal occlusal defect on the mandibular right first molar is the overriding reason for food impaction between these teeth.
 - C The facial recession noted does not contribute to food impaction between the teeth.
 - D** Recurrent decay most likely caused the loss of the distal portion of the amalgam restoration, creating the potential for food impaction.
 - E A diastema refers to a natural space created when two adjacent teeth are situated in the arch without contacting. The space created between the mandibular right first and second molar is not naturally occurring, but due to the distal occlusal defect of the first molar.

5.
 - A Calculus deposits appear radiographically on the mesial and distal of the maxillary right first molar. This observation should not be confused with composite restorations.
 - B** The radiographs indicate that the maxillary right central incisor has been restored with composite material.
 - C The mandibular left first molar has been restored with amalgam.
 - D Overlapping error on the radiograph of the mandible left lateral incisor should not be confused with composite restorative material.
 - E The mandibular right first molar has been restored with amalgam. The distal occlusal portion of the amalgam appears less radiopaque on the radiograph. A clinical examination of the photographs reveals that this restoration is missing because of recurrent decay.
6.
 - A The radiolucency observed on the maxillary right central incisor has the prepared look of a composite restoration.
 - B The radiolucency observed in the region of the maxillary left second molar roots is furcation involvement.
 - C** The radiographs reveal a radiolucency on the distal of the mandibular left first molar that should be suspected as caries.
 - D The radiolucency observed around the cervical region of the mandibular right canine is the radiographic optical illusion cervical burnout. This optical illusion should not be confused with caries.
 - E The mandibular right second molar has deep pits and fissures that are evident on the occlusal surface. However, when examining radiographs for occlusal caries, the dentin apical to the occlusal enamel should be observed. The dentin under the enamel of this tooth appears normal.
7.
 - A The Water's technique is an extraoral radiograph used for imaging the sinus.
 - B Posterior-anterior radiographs are an extraoral technique often used by oral surgeons and orthodontists to aid in examination of growth and development, disease, trauma, and developmental anomalies.
 - C The occlusal radiograph utilizes a variation of the bisecting technique to image a large area of pathology. On an adult, a size #4 image receptor would most likely be used.
 - D Localization techniques usually utilize two radiographs, taken with two different angles to determine the buccolingual position of an object.
 - E** When posterior image receptor placement is difficult, or placement will not adequately image the posteriorly located structure, the disto-oblique periapical radiographic technique can be used. Using the disto-oblique technique allows the x-ray beam to be directed toward the image receptor obliquely from the distal for the purpose of imaging the posterior structure. The result is more of the posterior structure being imaged, but a side effect is the production of increased overlapping, evident in this radiograph.
8.
 - A The lingual foramen when observed radiographically appears as a small radiolucent dot usually surrounded by the radiopaque genial tubercles, inferior to the mandibular anterior teeth apices.
 - B** This is the normal appearance of the mental fossa and should not be confused with pathology.
 - C Although early periapical cemental dysplasia appears radiolucent, the normal appearing mental fossa should not be confused with this condition.
 - D The reduced amount of cancellous bone of osteoporosis is difficult to assess from dental radiographs. With special techniques, the loss of density of the cortical plate of bone of the inferior border of the mandible may indicate osteoporosis. However, the normal appearing mental fossa should not be confused with oral manifestations of this disease.

- E A periapical abscess would manifest within the lamina dura of the affected tooth. In each of the radiographs of the mandibular anterior region, all teeth present with intact lamina dura.
9. **A** The American Heart Association recommends that patients with a history of infective endocarditis be premedicated before procedures likely to induce gingival bleeding.
- B Hypothyroidism controlled with medication does not require alterations in dental hygiene treatment.
- C A sinus infection does not require premedication with antibiotics before non-surgical periodontal therapy. However, the amoxicillin she is taking for her sinus infection is not considered significant premedication to prevent infective endocarditis. Another antibiotic such as clindamycin or cephalexin should be prescribed.
- D There are some indications that being born in certain countries puts an individual at risk for certain diseases, such as tuberculosis. However, place of birth does not play a role in determining the need for antibiotic premedication.
- E Antibiotic premedication is not required for any condition relating to blood pressure. Additionally, this patient's blood pressure reading is normal.
10. A The American Heart Association recommends 2 g amoxicillin orally 1 hour before treatment for patients at risk for infective endocarditis. However, this patient is currently taking amoxicillin for a sinus infection. Therefore, another antibiotic, such as clindamycin, should be prescribed.
- B,D The American Heart Association recommends administering ampicillin or cefazolin intramuscularly or intravenously when patients cannot tolerate oral medications.
- C** Because this patient is already taking amoxicillin for her sinus infection, another antibiotic should be prescribed as a premedication for prevention of infective endocarditis. The American Heart Association recommends 600 mg clindamycin orally 1 hour before treatment.
11. 1. **B** The first appointment should focus on relieving pain. The periodontal abscess indicates the need for emergency treatment. This is considered the preliminary phase of care.
2. **A** Continuing the preliminary phase of care, 24 to 48 hours after initial treatment of the periodontal abscess, the tooth is evaluated for prognosis and a determination is made to continue with nonsurgical periodontal therapy, periodontal surgery, or extraction.
3. **H** Prior to beginning nonsurgical therapy, the patient's motivation and ability to perform effective oral health behaviors need to be evaluated. Goals for improving oral self-care should be established.
4. **C** Scaling and root planing begin phase I nonsurgical therapy. Because of the amount of calculus, pocket depths, and anticipated bleeding, more than one appointment will be necessary. This patient requires prophylactic antibiotic premedication. Prolonged antibiotic use is discouraged, as this can create the proliferation of antibiotic-resistant microorganisms. Because resistance is unlikely to continue 9 to 14 days after stopping the antibiotic, it is advised that appointments requiring premedication be spaced 2 weeks apart. Additionally, completing as much treatment as possible at one appointment will reduce the number of times the patient must take the antibiotic. Because this patient presents with no conditions that contraindicate long appointments, one-half of the mouth can be treated at each appointment.
5. **D** Following nonsurgical therapy the tissue and host response and efficacy of self-care should be evaluated.
6. **F** Unless restorative appointments are being conducted simultaneously with nonsurgical periodontal therapy, the dental defects should be corrected so that they do not compromise further periodontal interventions.

7. **G** When all nonsurgical and surgical interventions have been completed, an assessment must be made to determine tissue response and the need for referral to a periodontist.
8. **E** Following the evaluation appointment and after feedback from a periodontist's assessment, maintenance appointment intervals can be determined.
12. **A** Nitrous oxide–oxygen analgesia would be acceptable when only slight discomfort was anticipated. Comprehensive treatment of the periodontal abscess would be better achieved through the use of a block anesthesia.
- B** Topical anesthetic such as benzocaine would not provide the profound anesthesia required to treat the periodontal abscess especially when discomfort will most likely be felt in the teeth and soft tissue.
- C** Infiltration anesthesia alone is not likely to produce the desired amount of comfort required to treat the periodontal abscess. Infiltration with short-acting prilocaine may not provide the level of anesthesia for the duration of the procedure as the lack of epinephrine allows the anesthetic to be diffused rapidly away from the region. Additionally, without epinephrine there is likely to be increased bleeding.
- D** Noninjectable anesthetic lidocaine 2.5% and prilocaine 2.5% gel provides very good anesthesia for a short (10 to 20 minutes) duration. It is most likely that profound anesthesia for a medium to long duration would better allow treatment in the region of the periodontal abscess.
- E** A block anesthesia is required to debride the area affected by the periodontal abscess to provide drainage. Long-lasting bupivacaine allows ample time to complete the scaling, debridement, and irrigation of the quadrant. The added benefit of a long-lasting anesthetic is pain control following the procedure. The addition of epinephrine will control bleeding throughout the procedure.
13. **A,C** Endocrine system problems such as diabetes and hormone fluctuation have been shown to play a role in increasing risk for periodontal disease. However, this patient does not present with evidence of these conditions. Her thyroid condition is controlled with medication and does not play a role in increasing her risk for periodontal disease.
- B** Susceptibility to periodontal disease seems to increase with long-term stress. It is most likely that this patient's pursuit of a doctoral degree and work on her research project has created a stressful situation for her over time.
- D** Although risk for developing periodontal disease appears to increase with age, this patient's age would seem to place her into a category of being less likely to have the disease.
- E** Although genetics may play a role in developing periodontal disease, there is no evidence that this patient's race predisposes her for the disease.
14. **A** Pocket formation, bone loss, and inflammation categorize this patient's periodontal disease as chronic periodontitis.
- B** Aggressive periodontitis usually results in localized rapid destruction of the periodontium and is more commonly found in patients under age 30. Although this patient presents with severe bone loss in the molar regions, the radiographs reveal generalized varying levels of bone loss.
- C** This patient is not taking any medications that would result in drug-induced gingival disease.
- D** This patient does not present with a systemic disease that would predispose her to a compromised host response for periodontal disease.
- E** Necrotizing periodontitis is often seen in patients with compromised immune systems, not evident in this patient's health history.

15.
 - A** The probe reading on the facial aspect of the maxillary left canine is 2 mm. Although there is recession in this area, an estimate of the distance from the mucogingival line to the free gingival margin indicates that there is still adequate attached gingiva in this region.
 - B The facial aspect of the maxillary left second molar appears to be where a periodontal abscess is draining. Taking into consideration the deep probe readings in this region, there is likely to be inadequate attached gingiva here.
 - C The probe reading on the facial aspect of the mandibular left central incisor is 2 mm. Taking into consideration the recession observed in this area, an estimate of the distance from the mucogingival line to the free gingival margin indicates the likelihood of inadequate attached gingiva in this region.
 - D The probe reading on the facial aspect of the mandibular right canine is 1 mm. Taking into consideration the recession observed in this area, an estimate of the distance from the mucogingival line to the free gingival margin indicates the likelihood of inadequate attached gingiva in this region.
 - E The probe reading on the facial aspect of the mandibular right second molar is 1 mm. Taking into consideration the recession observed in this area, an estimate of the distance from the mucogingival line to the free gingival margin indicates the likelihood of inadequate attached gingiva in this region.

16.
 - A Although the increased probe readings obtained at the reevaluation appointment in two of the posterior quadrants indicate a need for retreatment, the decreased probe readings obtained at the reevaluation appointment in the mandibular posterior quadrants indicate a favorable response to treatment.
 - B Although the increased probe readings obtained at the reevaluation appointment in the area of the mandibular central and lateral incisors indicate a need for retreatment, the decreased probe readings obtained in the other regions of the mandibular indicate a favorable response to treatment.
 - C Although the increased probe readings obtained at the reevaluation appointment in the maxillary right and left posterior regions indicate a need for retreatment, this answer does not include other nonresponsive regions.
 - D Although the increased probe readings obtained at the reevaluation appointment in the area of the mandibular central and lateral incisors indicate a need for retreatment, the decreased probe readings obtained in the maxillary anterior sextant indicate a favorable response to treatment.
 - E** The increased probing depths assessed at the reevaluation appointment for the maxillary right posterior, the maxillary left posterior, and the mandibular left central and lateral incisor regions all indicate no response to treatment. These unstable sites should be assessed and if calculus is remaining in the pockets, it should be removed.

17.
 - A Although flossing would be a better choice for complete interproximal self-care, including removal of the plaque, this patient has most likely discovered that the size and nature of food particles may well be more easily removed by use of the interproximal plastic pick.
 - B Food accumulation in the embrasures is more likely to be noticed by the patient than plaque accumulation in the furcation areas.
 - C The root surfaces exposed by gingival recession will be increasingly difficult to keep clean. However, these areas would be unlikely to benefit from the use of an interproximal oral hygiene aid.
 - D** The blunted papillae have left the embrasures between the teeth open to food debris accumulation.

- E Although cultural and/or familiar use of certain oral self-care devices may influence the patient's choice, it is more likely that annoying food particles accumulating in the embrasures is the reason she has chosen to use this interproximal oral hygiene aid.
18. **A** A periodontal abscess is suspected given the symptom of throbbing pain and the enlarged, red appearance with exudate upon probing. The presence of deep pockets, furcation involvement, and mobility of the teeth in this area indicate a periodontal emergency. The radiographs reveal a slight widening of the periodontal ligament space. The reason the radiographs do not play a major role in identifying this condition could be that it is difficult to adequately image intrabony defects involving these multirrooted teeth.
- B This patient's symptoms are characteristic of a periodontal emergency. Incorrect use of interdental cleaners may produce trauma, but not of this nature.
- C Bone exostosis, like tori, are considered normal in some patients. These hard, bony extensions of the arches do not cause pain or exude suppuration.
- D Occlusal disharmonies contribute to periodontal disease, and are likely to produce mobility, bone loss, and pain, but not in this acute, throbbing painful manner. Occlusal disharmonies will not produce the extended gingival swelling nor exude purulence.
- E An impacted tooth is not evident on the radiographs.
19. A Recurrent periodontal disease refers to disease that has returned after a period of stabilization. This patient's initial periodontal status has not responded to nonsurgical treatment and therefore surgical intervention should be considered.
- B Periodontal diseases that do not respond to treatment are often said to be refractory. Because this patient's initial periodontal status has not responded to nonsurgical treatment, she should now be referred for assessment of surgical intervention options.
- C** The increased probe depths in two of four posterior quadrants and in the mandibular central and lateral incisor region assessed at the reevaluation appointment indicate no response to treatment. Additional considerations for referral for evaluation for periodontal surgery include periodontal abscess, tooth mobility, and the possibility of refractory periodontal disease.
- D Necrotizing ulcerative periodontitis is characterized by extensive necrosis and pain and usually occurs in patients who are immunosuppressed.
- E This patient does not present with use of a drug linked to gingival enlargement.
20. A,C,E This patient does not present with any condition that would contraindicate the use of these self-care products.
- B** This patient's needs for premedication and degree of inflammation associated with her periodontal condition may contraindicate oral irrigation. The incidence of bacteremia increases with the degree of inflammation and infection present. However, because this patient is likely to benefit from irrigation with chlorhexidine gluconate, her physician should be consulted to determine if this treatment can be prescribed.
- D Although use of a whitening product may be contraindicated in this patient with active periodontal disease, it is not necessary to contact her physician to make the decision regarding recommendations for its use.
21. A The systemic use of the antibiotic she is currently taking for her sinus infection may not be providing the level of concentration needed at the site of the periodontal abscess.

- B Although the most likely reason for antibiotic failure is inadequate/incorrect dosing required for the periodontal condition, she also presents with local risk factors of deep pockets and furcation involvement that accumulate and trap bacterial plaque. The radiographs also reveal the presence of calculus, a local contributing risk factor that prevents healing.
 - C It is possible that the microorganisms are not susceptible to the antibiotic chosen. Also, antibiotic-resistant microorganisms may have emerged as a result of long-term use of the amoxicillin.
 - D It is most likely that the dose of antibiotic she is taking is appropriate for her sinus infection, but not for her periodontal condition.
 - E** Because this patient reported taking amoxicillin for her sinus infection on the health history, there is no reason to assume that she is noncompliant. Each of the other factors listed are potential reasons for failure of the antibiotic she is currently taking for her sinus infection to also reduce the periodontal abscess.
- 22.
- A Treatment of this acute periodontal abscess should begin with establishing drainage to the area as well as scaling and root planing to remove any calculus. The tissues should be given time to respond to this treatment and can be evaluated after 24 hours to decide on the next phase of treatment.
 - B The time period within which even the longest-acting anesthesia will wear off is not long enough to allow the tissues to respond to treatment.
 - C** If successfully treated with debridement and providing drainage to the area, the patient should report a decrease in the discomfort after 24 hours.
 - D,E Successful treatment will eliminate the pain within 24 hours. If the patient's symptoms have not subsided within this time frame, periodontal surgery will most likely be needed to access the affected area.
- 23.
- A,B This patient should be instructed to avoid whitening products until the periodontal abscess has been treated and her periodontal condition responds to treatment.
 - C The anterior composite restoration will not whiten.
 - D** Adult patients over the age of 16 (who are not pregnant or lactating) may use whitening products.
 - E This patient's teeth are already very white and her teeth would be at risk for developing a bluish hue that sometimes develops with excessive whitening treatments.
- 24.
- A The patient must sign the medical history form verifying that she (as a legal adult) has provided the information. Although the clinician has taken the vital signs as part of the assessment data, the patient's signature is not required to verify these data.
 - B** Legally the patient must provide consent to treatment. A signed written informed consent form satisfies this legal requirement.
 - C A patient need not be a legal resident of the United States to receive dental hygiene treatment.
 - D Obtaining a patient's signature to validate a commitment to self-care can be a helpful motivator for maintaining good oral health self-care. However, this would not be legally required for treatment.
 - E Although this question is often included on a dental history as part of the health history, it is not a legal requirement that the patient must sign prior to treatment.

25. **A** This patient has been using over-the-counter tooth whitening products that seem to have produced the very white shade observed in the photographic images. Because she is still seeking whitening products, it is highly likely that she has unrealistic expectations of the outcome.
- B,D,E All whitening products contain either hydrogen peroxide or carbamide peroxide in varying concentrations. Because this patient has been using over-the-counter whitening products without tooth or soft tissue sensitivity or an allergic reaction, it is highly unlikely that these conditions will develop with professionally applied or prescribed products.
- C The anterior composite restoration appears to be lingually located, and less visible from the facial aspect and/or appears to match the very white shade of her natural teeth. Additionally, this patient's natural teeth appear to be as white as they can be, making it highly unlikely that additional whitening treatments will produce a significant increase to a whiter shade and increase the visibility of the composite restoration.



PART IV GERIATRIC PATIENTS

CHAPTER 9 CASE G JUAN HERNANDEZ

- A Necrosis indicates cell death, which is not present in this area.

B Although cyanosis will appear as a bluish discoloration on the tissue, the cause is an excessive concentration of reduced hemoglobin in the blood not present in this area.

C Leukoplakia appears as a white, thickened tissue not present in this area.

D Exostosis appears as a hard outgrowth of bone not present in this area.

E An amalgam tattoo presents lingual to the maxillary right first molar when viewing the intraoral photographs. An amalgam tattoo often appears as a localized gray-blue discoloration due to the inadvertent depositing of amalgam fragments into the gingiva during the cavity preparation.
- A Granular tissue is characterized by soft, pink fleshy tissue that forms during wound healing. Torus palatinus would not resemble a chronic inflammatory lesion such as a granular tumor.

B Pseudocyst, a cyst without a lining membrane, is a condition related to the digestive tract, often occurring following pancreatitis.

C The palatal region is not covered with gingival tissue.

D The bony projection in the midline of the palate is characteristic of a torus palatinus and should not be confused with pathosis or conditions requiring further diagnosis.

E There are no salivary duct openings in the midline of the palate.
- A An open bite refers to the relationship between maxillary and mandibular anterior teeth that do not contact or overlap in occlusion.

B Edge-to-edge refers to occluding incisal surfaces of anterior teeth.

C As demonstrated on the study model, the maxillary first molar on the left side occludes with the mandibular molar in a cusp-to-cusp, or end-to-end relationship.

D Posterior teeth that are located facial or lingual to their normal position are in crossbite.

- E When the maxilla or mandible is protruded, the teeth are located anterior of normal.
4. **A** Cervical burnout is the term given to the radiographic optical illusion that results in an increased radiolucency imaged in the cervical region of the tooth. Cervical burnout does not refer to the condition of the tooth itself.
- B This region exhibits recession that most likely exposed cementum. This patient's horizontal scrubbing action of toothbrushing may have contributed to abrasion that began on the exposed cementum and extended into a wedge-shaped lesion into the dentin.
- C Aggressive scaling over time can lead to a significant loss of cementum, creating the need for these restorations.
- D Recession that exposed these root surfaces increased the risk for caries.
- E Abfraction lesions occur when mechanical stress of teeth is exceeded during mastication. The maxillary first and second premolars have porcelain fused-to-metal crowns that may have exerted loading pressure on the mandibular teeth, creating flexure at the cervix. This is further evidenced by the fremitis exhibited by these teeth. Repeated flexing results in loss of tooth structure on the buccal surfaces of the cervical one-third of the affected teeth.
5. A,C,D These answers are incorrect, as explained next.
- B** Although the incidence of gingival recession increases with age and occlusal trauma, this patient's gingival recession is the result of periodontal disease. Gingival recession exposes the cemental root surface, putting the tooth at risk for root caries.
6. A Stroke often leaves victims debilitated to some degree in motor function, speech, and mental function. However, the temporomandibular joint would not be singled out as a target for dysfunction.
- B High blood pressure does not cause TMD.
- C** TMD may be found in 45% to 75% of arthritic patients. Symptoms include pain, stiffness, swelling, and decreased mobility.
- D Although the incidence of diseases such as arthritis and conditions such as TMD increase with aging, age itself does not cause TMD.
- E Attrition and other changes that may influence occlusion may play a role TMD, but this patient's examination does not indicate occlusal deviations significant enough to create TMD.
7. **A** The radiopaque appearance of the pulp chambers of this tooth indicate the presence of endodontic filling material. Gutta percha and a post-and-core restoration can be observed on the radiograph of this tooth.
- B The spiral pin core restoration is similar in appearance, although much smaller, to an endosseous implant. However, the tooth root is visible indicating that an implant has not replaced a missing tooth.
- C Internal resorption appears as a radiolucent widening of the pulp chamber as tooth structure is destroyed.
- D The presence of endodontic filling material rules out observing pulp stones.
- E The root length and morphology is normal and no apicoectomy is evident.
8. 1. **D** The clinical photographs and the radiographs reveal the appearance of a metal restoration that covers all of the surfaces of the clinical crown. The smooth margins of this restoration indicate a full metal crown present on the maxillary right second molar. Metal restorations will appear more radiopaque than composite restorative materials and the smooth margins of this radiopacity indicate a crown and not an amalgam restoration (which would have more irregular margins). The radiopaque smooth metal outline of the restoration contours to the anatomical shape of the tooth.

2. **A** The clinical photographs and the radiographs reveal the appearance of an amalgam restoration on the mesial, occlusal, and distal surfaces of the maxillary right first molar. This metal restoration will appear more radiopaque than composite restorative materials and the irregular margins distinguish the amalgam from a crown radiographically.
 3. **C** Radiographically, the size, shape, and appearance of metal and porcelain indicate a porcelain-fused-to-metal crown present on the maxillary right second premolar. Metal restorations will appear more radiopaque than composite restorative materials and the smooth margins of this radiopacity indicate a crown and not an amalgam restoration (which would have irregular margins). The radiopaque smooth metal outline of the restoration does not contour to the anatomical shape of the tooth. A close examination of the radiographs indicates the presence of slightly less radiopaque porcelain used to shape cusps to restore the tooth to the correct anatomic shape for mastication.
 4. **B** Radiographically, the lack of dense material (metal) and the presence of radiopaque cement indicate a porcelain crown present on the maxillary right lateral incisor. While this porcelain-only crown, without the dense metal present, requires close examination of the radiograph to detect, the clinical photograph confirms its presence.
 5. **E** Close examination of the radiographs reveals the presence of a composite restoration on the distal surface of the maxillary right central incisor.
 6. **F** Composite restorative material can also be observed on the maxillary left central incisor. However, this is the only tooth on this list that also exhibits retention pins. The radiographs reveal the presence of retention pins that appear as radiopaque thin lines on the radiograph. Retention pins are distinguished from the other materials by their size, shape, and position within the dentin of the teeth. They do not penetrate the pulp chamber or root canal. Due to wear of the composite restoration, one of these retention pins can be observed on the clinical photographs as well.
9. **A,B** The required teeth have been recorded on this radiograph. Moving the image receptor posteriorly or anteriorly will omit the required teeth from the image.
C The vertical angulation is correct for this image. Decreasing the vertical angulation will result in not recording the root apices.
D The vertical angulation is correct for this image. Increasing the vertical angulation will result in not recording the incisal edges of the teeth.
E The technique error evidenced in the maxillary right canine periapical radiograph is conecutting. Conecutting is corrected by completely covering the image receptor with the x-ray beam so that the entire radiograph is exposed. In this case, it is the inferior portion of the radiograph that did not get exposed. The PID should be moved inferiorly to completely expose the entire image receptor.
 10. **A** The age of this patient would not play a role in the orientation of the image receptor.
B Vertical bitewing radiographs provide increased imaging in the vertical dimension over horizontal bitewings. Recording an increased area of alveolar bone is especially valuable for use when periodontal involvement presents.
C The presence of a large torus may be more likely to interfere with a vertical placement of the image receptor than a horizontal placement.
D When opening is painful or difficult, vertical placement of the image receptor may be more difficult than horizontal placement.
E Vertical placement of the bitewing radiograph does not provide information about the apices of teeth and therefore would not replace periapical radiographs.

11.
 - A Genial tubercles often appear apical to the mandibular central incisors as a radiopaque circle surrounding the lingual foramen.
 - B Although the mental foramen would also appear as a round radiolucency, the mental foramen is more likely to be imaged near the apices of the mandibular first and second premolars.
 - C** The mandibular right lateral incisor appears to have been extensively restored. Given the history of restorative trauma to this tooth, the rounded radiolucency observed at the apex of this tooth should be suspected to be indicative of a periapical abscess.
 - D The film identification dot should not be confused as an interpretive finding.
 - E Tori appear radiopaque.
12.
 - A The diuretic Diuril would not contraindicate treatment.
 - B The antihyperlipidemic Lipitor would not contraindicate treatment.
 - C Naprosyn, a nonsteroidal anti-inflammatory, may sometimes increase risk for bleeding. In the absence of symptoms of blood dyscrasias, this patient's use of Naprosyn would not contraindicate treatment.
 - D** Coumadin interferes with blood clotting, which may lead to excessive bleeding following scaling. Therefore, a medical consult should determine this patient's prothrombin time or international normalized ratio (INR) status prior to proceeding with subgingival instrumentation. The Coumadin dose may need to be reduced or stopped before scaling to prevent excessive bleeding.
13.
 - A** This patient's osteoarthritis is causing morning stiffness in his hips and knees, which makes it difficult for him to walk. A later appointment would allow the stiffness to dissipate and increase his ambulatory capabilities.
 - B,C,D Assisting with patient comfort will help avoid stress and physical problems that may result from the paresis.
 - E Short treatment segments are recommended to avoid stress.
14.
 - A,C If an acceptable prothrombin time indicates that excessive bleeding will not occur, debridement with hand and ultrasonic instrumentation would be acceptable treatment for this patient.
 - B** Patients taking a diuretic to manage hypertension are often advised to limit the use of sodium-containing products. Therefore, air-powder polishing with sodium bicarbonate would be contraindicated.
 - D If necessary, there is no contraindication for use of nitrous oxide sedation with this patient.
 - E There are no contraindications to using sodium fluoride with this patient.
15.
 - A The purpose of oral prophylaxis is to prevent gingivitis and periodontitis. Because this patient presents with periodontitis, appointment planning should be based on nonsurgical periodontal therapy. Additionally, a reevaluation appointment 4 to 6 weeks later should be scheduled to assess the need for additional therapy and to determine the length of recall interval that would best manage his disease.
 - B** The purpose of nonsurgical periodontal therapy is to treat and manage established periodontal disease. Based on this patient's periodontal condition (4- to 6-mm pockets in the posterior regions) and the slight generalized calculus accumulation at this 6-month recall appointment, complete mouth debridement could be accomplished in one appointment of typical length. A reevaluation appointment scheduled 4 to 6 weeks later is considered appropriate for assessing tissue response.
 - C The amount of calculus and the depths of the pockets this patient presents with indicate that a complete mouth disinfection is not necessary. Full-mouth

disinfection involves a long appointment, or appointments scheduled within 24 to 48 hours, for scaling and root planing, and removal of local contributing factors that harbor plaque. The purpose of full-mouth disinfection is to reduce the cross-contamination from untreated regions during the time between appointments.

- D,E The amount of calculus and the depths of the pockets this patient presents with indicate that a complete mouth debridement could be accomplished in one appointment of typical length.
16. A Aggressive periodontitis is characterized by rapid attachment loss and bone destruction not evident in this patient.
 B Slight chronic periodontitis is characterized by probing depths of 4 to 5 mm and clinical attachment loss of 1 to 2 mm; bone loss is less than 20%; and no mobility or furcation involvement.
 C This patient's probing depths in the posterior regions, probe-depth readings of the anterior teeth combined with the amount of recession in these regions, and furcation involvement indicate a generalized moderate periodontal disease state.
 D Severe chronic periodontitis is characterized by probing depths of more than 8 mm and clinical attachment loss greater than 5 mm; bone loss is more than 50%; and mobility and/or furcation involvement is evident.
 E Refractory periodontitis is considered resistant to treatment. This term may be given to all types of periodontal disease that do not respond to treatment, for example, refractory chronic periodontitis.
17. A Furcation involvement of the multirooted first molars may make comprehensive instrumentation in these areas difficult.
 B Poorly contoured crown margins and amalgam overhanging restorations noted in the radiographs will most likely hinder access to these areas.
 C This patient presents with multiple cervical restorations that require increased tactile sensitivity and skill for effective instrumentation.
 D Coumadin and Naprosyn taken by this patient are likely to increase bleeding during subgingival instrumentation in inflamed regions that can hinder the ability of the dental hygienist to thoroughly remove all deposits.
 E An examination of this patient's oral cavity reveals extensive past dental treatment indicating that he does not appear to object to oral health care by professionals.
18. A Systemic antibiotic therapy, often prescribed in aggressive periodontitis and acute infections, would not be prescribed for this patient, whose pocket depths may respond better to physical disruption of localized plaque biofilm.
 B Patients with generalized moderate chronic periodontal disease should maintain regular appointments with the periodontist. Additionally, this patient requires evaluation of occlusion risk factors for periodontal disease; furcation involvement; and assessment of pocket depths not responding to treatment.
 C Unresponsive regions should be assessed for the need for additional scaling to remove calculus deposits still remaining. All areas of inflammation should be instrumented to deplete and disrupt biofilm to promote healing.
 D The effectiveness of a chemotherapeutic agent may be enhanced when delivered to the unresponsive pockets by oral irrigation.
 E Pocket depths over 5 mm that did not respond to treatment are good candidates for locally delivered drug therapy.
19. A This patient does not present with the aggressive attachment loss that would require periodontal maintenance appointment intervals as short as 1 month.

- B** The probe readings at the reevaluation appointment appear stabilized and in some areas, decreased. Based on his moderate periodontal condition, occlusal problems (fremitus and history of abfraction lesions), and health status that make him an unlikely candidate for periodontal surgery, he should be placed on a 3-month recall interval.
 - C A patient with no previous history of periodontal diseases who presents with no risk factors for the disease can be scheduled for up to 6-month recall intervals.
 - D Research indicates that this patient, with a history of periodontal disease, should be on a maintenance schedule that is no longer than 3 or 4 months.
- 20. A,E This patient's arthritis and self-reported difficulty using floss would be indicators for the use of an automatic toothbrush and floss-holding device.
 - B To target the accumulation of cervical plaque and marginal bacteria, an oral irrigation device may be useful. A power-driven device may aid this patient with limited manual dexterity.
 - C Use of fluoride mouth rinse is a simple, safe, and cost-effective method of increasing caries protection for an aging population. In addition to this patient's generalized recession that increases his risk of root caries, xerostomia associated with antihypertensive medications further indicates the need for home fluoride use.
 - D** The photographic images reveal intact papilla. The use of interdental brushes for cleaning interproximally would not be indicated.
- 21. A Diamond finishing strips are difficult to use in the posterior regions of the mouth and are best suited for composite and glass ionomer restorative margination.
 - B The flame-shaped silicon carbide bur will not adapt to the tooth surface adequately.
 - C A gold knife is better suited for the removal of a composite restorative flange.
 - D** The margination of an interproximal overhang can best be accomplished with the use of a fine-fluted carbide bur because it fits into the proximal space, adapts to the tooth, and removes the amalgam without much damage to the tooth structure.
- 22. A,B A soft diet and application of moist heat can help alleviate pain and stiffness.
 - C** Based on the anti-inflammatory and anticoagulant medications this patient is currently taking, recommending acetaminophen is contraindicated. The patient can be referred to his physician to evaluate the success of his medications at managing his TMD.
 - D Fabrication of an occlusal appliance can help manage TMD.
 - E This patient's TMD is most likely interrelated with his arthritis. His physician may be able to evaluate the medications he is taking to manage the arthritis and make recommendations that can also help control TMD pain.
- 23. A,B,C Effective communication for this patient with a history of a stroke requires good communicative techniques that include speaking clearly and slowly, and directly to the patient; providing frequent feedback to ensure that the patient comprehends what is being communicated; and using basic, uncomplicated media to demonstrate instructions and explain treatment.
 - D Maintenance of stability is normally a concern of the patient living with effects of a stroke. Moving slowly and deliberately around the patient can help avoid disorientation.
 - E** Stroke victims are often unaware of the extent of their paresis. Therefore, it is important to not overestimate this patient's abilities. The dental hygienist should take a proactive stance with this patient and provide assistance when seating or dismissing or changing chair positions.

24. A,D Disclosing to determine the presence of biofilms and probing are considered data gathering, necessary to prepare a dental hygiene treatment plan, and as such are considered to be covered by implied consent.
- B** Implied consent is given by the patient's presence in the treatment chair and includes assessment gathering procedures only. This patient would need to grant written and documented informed consent to nonsurgical periodontal therapy after being informed of all options, risks, and potential complications of treatment.
- C,E An intraoral examination to determine occlusal relationships and an extraoral examination of the TMJ, necessary to prepare treatment plans and referrals, are considered covered by the patient's implied consent.
25. A Informed consent requires an explanation of expected outcomes and prognosis of treatment.
- B,E Informed consent requires an explanation of possible outcomes of treatment and of possible consequences of no treatment.
- C A list of alternative treatments and their costs is required for the patient to make informed decisions about which treatment to consent to undergo.
- D** This patient is considered competent and unless he requests it, his granddaughter need not be involved with his decision to give consent to treatment.

CHAPTER 10 CASE H VIRGINIA CARSON

- A Hypotension refers to a drop in blood pressure below normal rates.

B For adults, a systolic blood pressure reading under 120 mm Hg and a diastolic reading under 80 mm Hg is classified as normal.

C For adults, a systolic blood pressure reading between 120 and 139 mm Hg and diastolic readings between 80 and 89 mm Hg is considered prehypertension.

D Systolic blood pressure readings between 140 and 159 mm Hg and diastolic readings between 90 and 99 mm Hg are classified as hypertension stage 1.

E Systolic blood pressure readings over 160 mm Hg and diastolic readings over 100 mm Hg are classified as hypertension stage 2.
- A Grade I furcation is characterized by a detectable depression in the furcation opening. Radiographic changes are not evident at this early stage.

B Grade II furcation is characterized by bone loss that allows the probe to detect a cul-de-sac under the dome of the furcation. Radiographs may or may not depict the involvement at this stage.

C In the 1950s, Glickman developed the classification of furcation involvement identified by Grades I through IV. Grade III is characterized by the absence of interradicular bone visible radiographically where the bone is not attached to the dome of the furcation. The entrance to the furcation remains occluded by the gingiva.

D If the soft tissues have receded apically so that a Grade III furcation involvement is clinically visible, Grade IV is the appropriate classification.
- A Primary herpetic gingivostomatitis presents as painful vesicles on the gingiva, mucosa, tongue, or lips. This patient does not exhibit the fever, malaise, and pain that would interfere with eating that accompany this infection.

B The round red area in the middle of the palate is the classic appearance of chronic atrophic candidiasis, also known as denture stomatitis. This condition is limited to the mucosa covered by a full or partial denture.

C Herpetiform aphthous ulcers cause pain that is not a complaint of this patient.

- D Melanin pigmentation most commonly presents in dark-skinned individuals and appears blue, black, or brown in color.
 - E Torus palatinus is an overgrowth of bone that presents as a raised surface and a paler diffuse color than the surrounding area.
4. **A** The genial tubercles are seen as a radiopacity on this mandibular incisor periapical radiograph.
- B The symphysis is a bony landmark located along the border of the mandible, but is not evident in this projection.
 - C The mental foramen is a radiolucent circle often observed on mandibular premolar radiographs.
 - D A retrocuspid papilla is a gingival landmark seen clinically on the lingual gingiva of mandibular canines and is not detectable radiographically.
 - E Trabeculae are radiopaque areas of bone that give cortical bone the sponge-like appearance. The defined circle seen on this film is characteristic of genial tubercles.
5. A The cementoenamel junction occurs significantly superior to this dense band of calculus. Additionally, the scalloping continues across the interdental space, ruling out dental anatomy variations of the teeth.
- B Enamel would not be present in this root region of the teeth.
 - C** Heavy calculus buildup gives the radiopaque appearance seen in these radiographs.
 - D The clinical appearance of calculus noted in the photographs rules out this being composite resin.
 - E Cementicles are microscopic calcifications of the periodontal ligament.
6. A The soft tissue of the nose will sometimes be imaged as an enlarged outline traversing the radiograph in a somewhat horizontal direction. The missing maxillary teeth prevents the image receptor from being positioned where it would image the soft tissue outline of the nose.
- B Film fog or the digital equivalent of electronic noise, would appear as an overall graying of the image.
 - C The region being assessed is the nasal fossa, not the sinus cavity.
 - D The regions being assessed are the bilateral walls of the nasal fossa, not the nasal septum in the midline of the cavity.
 - E** The nasal conchae or turbinates are normal radiographic landmarks that are often observed projecting into the nasal fossa from the more radiopaque lateral walls of the nasal cavity. The conchae are not densely calcified and therefore appear less radiopaque than the surrounding bony structures.
7. A,D Clinically, this tooth does not exhibit wear at the cervical area that would indicate abrasion or abfraction.
- B** This radiolucency represents an optical illusion of darkness sandwiched between the more radiopaque bone below and the more radiopaque ledge of heavy calculus above. The radiolucency is further enhanced by the morphology of the tooth root, which presents with an increased concavity further contributing to the optical illusion of radiolucency in this area of the tooth. The optical illusion cervical burnout should not be confused with the radiographic appearance of interproximal caries.
 - C A fracture is not evident clinically or radiographically.
 - E Caries, when present, will usually appear at the contact point between adjacent teeth or just apical to this area and not under the gingival margin at the alveolar crest.

8.
 - A Like other respiratory complications, patients with COPD should be treated in an upright chair position. However, antibiotic premedication is not indicated.
 - B Standard precautions taken to avoid disease transmission will contain exposure to hepatitis C. Antibiotic premedication is not indicated.
 - C This patient's congestive heart failure should be determined to be medically managed prior to comprehensive nonsurgical periodontal therapy; however, antibiotic premedication is not indicated.
 - D Antibiotic premedication is not indicated for the spontaneous gingival bleeding resulting from this patient's periodontal disease.
 - E** None of the conditions noted in this question place this patient at a greater risk for infective bacterial endocarditis than the general population.
9.
 - A,B Medical complications are more likely early in the morning, so appointments during this time should be avoided.
 - C** Midmorning to early afternoon, 11:00 A.M. to 2:00 P.M., is the best time to schedule the older adult patient, especially when medically compromised. Medical complications are more likely early in the morning and the older adult is more likely to be stressed by the happenings of the day in the later afternoon.
 - D,E Stress can be linked to an increased risk for a medical emergency in the medically compromised, geriatric patient. Because stress tends to increase as the day progresses, these appointment times should be avoided.
10.
 - A** The use of epinephrine in oral health care treatment for the patient on chronic drug therapy for congestive heart failure should be limited or avoided. Epinephrine could cause adverse reactions with her prescribed medications.
 - B Postural hypotension is a condition associated with the antihypertensive drugs taken by this patient.
 - C Most patients with chronic obstructive pulmonary disease can breathe more comfortably in a semisupine or upright position. This patient should be asked her preferred position prior to moving the treatment chair.
 - D Stress reduction protocol can help avoid triggering a breathing emergency.
 - E Vital signs should be monitored before and after treatment.
11.
 - A,C Because this patient exhibits bone loss and gingival recession, an interdental aid that can adapt to wide embrasures and concave proximal tooth surfaces is indicated.
 - B The blunted papillary shape exposing the wide embrasures are well suited for the use of tufted floss.
 - D** Most patients with a history of congestive heart failure will be on a salt restrictive diet, especially when the underlying cause is hypertension. This patient is taking antihypertensive medication that would most likely prohibit the use of a sodium-based agent.
 - E A toothpick-in-holder can be an effective tool for removing biofilm in areas of furcation involvement as well as in interproximal regions.
12.
 - A,C,D,E Patients with COPD who are chronic smokers are at increased risk for halitosis, periodontal disease, extrinsic tooth stains, and oral cancer.
 - B** This patient's maxillary full denture will most likely protect her hard palate from the concentrated heat stream created from smoking cigarettes. The lesion noted on the palate is most likely denture stomatitis, the result of an ill-fitting denture.
13.
 - A The gingival sulcus refers to the crevice between the free gingival margin and the tooth. The term *sulcus* is used when no pocketing presents.

- B,C A pocket detected when the gingiva has enlarged is called a gingival pocket or pseudopocket. When the free gingival margin is located coronal to the cemento-enamel junction (CEJ), a deep probe depth reading would not indicate true loss of attachment. Part of the probe depth reading in a gingival or pseudopocket is actually above the CEJ and does not represent loss of attachment. Although a pseudopocket may be associated with gingivitis, it is not associated with bone loss.
- D The bone loss associated with a periodontal intrabony pocket is usually vertical, where the base of the pocket extends apical into the alveolar crest.
- E** The bone loss associated with a suprabony pocket is usually horizontal and coronal to the alveolar crest.
14. A,B When less than 30% of the sites are periodontally involved, the term *localized* is used. This patient presents with a generalized periodontal involvement.
- C Because this patient presents with more than 30% of her remaining teeth periodontally involved, her disease is classified as generalized. However, this patient's loss of attachment is significantly more than the 1- to 2-mm loss that would be categorized as early.
- D This patient presents with more than 30% of her remaining teeth periodontally involved, classifying her disease as generalized. However, this patient's loss of attachment is more than the 3- to 4-mm loss that would be categorized as moderate.
- E** This patient presents with more than 30% of her remaining teeth periodontally involved, classifying her disease as generalized. Advanced periodontitis is characterized by a significant amount of bone loss representing 5 mm or more of attachment loss, areas of significant furcation involvement, and tooth mobility.
15. A,B Curettes will most likely be used to access subgingival deposits once the heavy calculus has been removed by the anterior sickle scaler.
- C** Although a power-driven scaler would be the first choice for removing heavy calculus, this patient's history of cardiovascular disease coupled with chronic obstructive pulmonary disease contraindicate the use of an ultrasonic scaler. To remove the heavy calculus deposits located in this region, the anterior sickle scaler would be the best hand instrument choice from this list.
- D,E Use of a power-driven ultrasonic scaler is contraindicated for this patient who presents with a respiratory risk.
16. A,B Based on the probing depths and radiographic assessment, the mandibular right second molar and mandibular right first premolar would appear to have the better prognosis.
- C** Clinically and radiographically, the mandibular right central incisor presents with the greatest loss of attachment and bone resorption.
- D Clinically the mandibular left lateral incisor does not have the amount of recession observed on the facial of the mandibular right central incisor, indicating less attachment loss.
- E The loss of attachment associated with the mandibular left second premolar is not as severe as with the mandibular right central incisor.
17. A The incidence of periodontal disease seems more prevalent in older populations. The association of periodontal disease with aging may be due to the cumulative nature of the disease. Age also increases this patient's susceptibility to infection and can be expected to lengthen healing time following treatment.
- B** Although gender is a risk indicator for periodontal disease, males tend to present with an increased risk.

- C Smoking is a risk factor for periodontal disease and will inhibit tissue response to treatment.
 - D Poor home care habits that allow bacterial plaque to accumulate increase the risk for periodontal disease.
 - E A lowered socioeconomic status and reduced access to regular professional dental care are risk indicators for periodontal disease.
18. **A** Based on this patient's advanced periodontal disease status, and the lack of significant pocket reduction observed at the 6-week reevaluation appointment, this patient should be referred to a periodontist.
- B This patient does not present with a condition that would prompt the need for pulp vitality testing.
 - C Pit and fissure sealants are unlikely to benefit this patient who does not present with a high risk of caries on the occlusal surfaces of the three posterior teeth remaining without restorations.
 - D This patient does not present with caries requiring dental restorations.
 - E Currently this patient does not present with a need for desensitization. Tissue shrinkage that exposes sensitive root surfaces may result after scaling. However, based on the information presented and the lack of significant pocket reduction observed at the 6-week reevaluation appointment, the best answer from this list is that the patient be referred to a periodontist.
19. A Dietary counseling is more commonly performed for caries control than this patient does not exhibit.
- B Although this patient should receive instruction in self-examination for oral cancer, the lesion observed on the palate is most likely chronic atrophic candidiasis and would require a denture adjustment and not a referral to a physician. This lesion should be observed again following denture adjustments.
 - C This patient's masticatory function has recently been restored through the fabrication of the maxillary denture that does not appear to need implants for stabilization. Additionally, implants would not be recommended until her periodontal status is improved and smoking cessation is realized.
 - D** Tobacco cessation intervention is the most immediate need, both for the improvement of periodontal status and to eliminate this risk factor for COPD and heart disease.
 - E There are no advanced or special infection control procedures to be used for patients presenting with communicable infectious diseases. All patients should be treated using standard precautions.
20. 1. **D** The National Cancer Institute and the Agency for Healthcare Research and Quality strategy the Five A's approach to smoking cessation include ask, advise, assess, assist, and arrange. Using these guidelines, the dental hygienist should first ask the patient about smoking habits.
- 2. **C** The dental hygienist should next advise the patient to quit.
 - 3. **B** Asking the patient about scheduling a date to quit smoking, the dental hygienist can assess the patient's readiness to quit smoking.
 - 4. **A** To assist the patient in developing strategies for smoking cessation, the dental hygienist should allow the patient to express concerns and determine what will motivate her.
 - 5. **E** The arranging step of the Five A's involves scheduling a follow-up discussion.
21. A Mouth rinses freshen breath, but do not remove plaque and debris from denture surfaces.
- B** Daily brushing with a toothbrush and paste made specifically for denture care is recommended to prevent stain accumulation.

- C,E Immersion in sodium hypochlorite (household bleach) or placing the denture in a dishwasher is not recommended for acrylic dentures.
 - D Brushing with a household scouring powder will damage the acrylic denture base and teeth.
22. A,D Repeating self-care instructions, providing written instructions, and using good communication techniques will improve communication with all patients.
- B Serious, but nonjudgmental recommendations will more likely produce patient compliance.
 - C Eliminating distracting background noise and music will help improve communication with the older adult.
 - E** These terms may be viewed as condescending to the older adult. Additionally, the patient should not be addressed by her first name unless she has specifically asked to be addressed in an informal manner.
23. **A** Assessing the oral health care facility for potentially hazardous barriers is important, especially when serving older patients who may present with diminished senses or limited motor control.
- B,C,D,E These answers are incorrect. An assessment of safe access to the facility will help avoid potential accidents for all patients.
24. A,C,D These answers are incorrect, as explained next.
- B** Dental hygiene care planning for the older adult must consist of comprehensive care that helps maintain good oral health for the life of the patient. All treatment options should be presented to the patient so that she can better make informed decisions about what treatment options will best serve her needs.
25. A Smoking and stress are two of the risk factors shared by both periodontal disease and cardiovascular disease.
- B Patients with periodontal disease have demonstrated higher levels of cardiovascular disease, or approximately twice the risk.
 - C Incidence of myocardial infarction has been shown to increase in patients with poor oral health, periodontitis, and oral infections.
 - D** Periodontal disease has been linked with other chronic inflammatory diseases such as heart disease and diabetes, each affecting the other. However, the cause and effect have not yet been established.
 - E Studies have indicated a link between periodontitis and chronic obstructive pulmonary disease, both chronic inflammatory diseases.

CHAPTER 11 CASE I ELEANOR GRAY

1. A Denture stomatitis or chronic atrophic candidiasis manifests as a round, red irritation caused by a full maxillary denture. This patient's partial denture replaces mandibular teeth and therefore would not be likely to affect the tissue of the hard palate.
- B** This bony exostosis observed at the midline of the palate is a torus palatinus. Tori vary in size and not all patients present with tori.
- C The viral infection herpangina would appear as erythematous vesicles or ulcers that would be painful and soft when palpated. The patient presents with no painful symptoms. Additionally, although the manifestation of herpangina is usually observed in the posterior region of the hard palate or on the soft palate, the nodule noted here is hard when palpated.
- D The median palatine suture, an anatomical landmark located in the midline of the palate, would not be clinically detectable. This landmark may be observed on radiographs as a thin radiolucent vertical line extending posteriorly from between the maxillary central incisors.

- E Most ulcers present as painful depressed lesions, whereas this patient presents with an asymptomatic raised bony exostosis.
2. A Green stain results from oral uncleanness not exhibited by this patient.
- B Rarer orange and red stains resulting from chromogenic bacteria often appear on the cervical regions of the teeth.
- C Black line stain often presents as a raised line that follows along the cervical one-third of the teeth. Although black line stain can occur in clean oral conditions such as those exhibited by this patient, the staining in the pits and fissures of these teeth is indicative of brown stains from foodstuffs.
- D** The teeth surfaces pits and fissures in this region are difficult to clean. As a result, the acquired pellicle has become stained from foodstuffs such as coffee or tea.
- E Although this patient presents with intrinsic yellow staining of all her teeth, the brown staining of the pits and fissures of these teeth is not necessarily associated with the presence of biofilm. Yellow stain associated with the presence of biofilm is more likely to be observed when self-care is not effective.
3. A Although an acquired pellicle and biofilm may be present, gingival recession has exposed the root surface cementum as indicated by the darker yellow color.
- B Intrinsic stains that occur inside the tooth and endogenous stains that develop from within the tooth often present as changes in the dentin that appear through the enamel. The normal appearance of root surface cementum observed as a result of gingival recession should not be mistaken for abnormal tooth staining.
- C** Gingival recession has exposed the darker yellow cementum covering the root surfaces of these teeth.
- D None of the medications taken by this patient would result in tooth staining.
- E Enamel hypoplasia results from an ameloblastic disturbance in which the teeth erupt with white spots that over time may become stained from foodstuffs and biofilm. The normal appearance of the exposed cementum of these teeth should not be confused with an abnormal disturbance during the formation of the teeth.
4. **A** The radiographs indicate a metal crown, and the remaining porcelain bonding is evident in the photographs. The oxidized metal is exposed indicating porcelain failure.
- B The appearance of porcelain bonding indicates that this is a porcelain-fused-to-metal crown and not a full metal crown.
- C The defective porcelain on the facial surface of this porcelain-fused-to-metal crown should not be confused with enamel that would be evident in a large, multisurface amalgam restoration. Additionally, the smooth, regular margins and complete crown coverage of the metal observed in the radiographs indicate a crown.
- D Porcelain veneer restorations are often placed on the facial surfaces of anterior teeth to restore esthetics. The tooth-colored material observed in the photographs is porcelain. However, the radiographs reveal the presence of a metal crown, indicating that the porcelain was bonded to the crown and not to the tooth itself.
- E The defective porcelain on the facial surface of this porcelain-fused-to-metal crown should not be confused with enamel. Although an onlay can be used to restore a significant amount of the occlusal surface of the tooth, including one or more cusps, this indirect fixed restoration is a crown, completely surrounding the tooth.

5.
 - A The clasp of the removable partial denture attaches to the right second premolar. This tooth serves as a support for the partial denture, but is not termed an *abutment*.
 - B The removable partial denture that replaces the mandibular right first and second molars is constructed as a bilateral appliance and is supported by both the teeth and the alveolar ridge. The framework of the appliance also serves to support the periodontally involved mandibular anterior teeth. However, neither the teeth to which the denture is clasped nor the teeth upon which the framework rest are considered abutments. The term *abutment* refers to a tooth that supports a retainer of a fixed bridge.
 - C,D The mandibular incisors have been splinted together to assist with stabilizing these periodontally involved teeth. The lingual metal wire is connected to these teeth with a bonding material. The term *abutment* does not apply to this appliance.
 - E** The fixed bridge on the mandibular left side consists of two pontics replacing the missing first and second molars and two retainers at each end of the bridge that are attached to the second premolar and the third molar. The teeth that support the retainers are called abutments. In this case, the mandibular left second premolar and the third molar serve as abutments for this four-unit bridge.
6.
 - A A cantilever bridge is supported by an abutment tooth or teeth on only one end.
 - B,E A Maryland bridge is a resin-bonded cast metal bridge that does not use full crowns over natural teeth as retainers. A Maryland or resin-bonded cast metal bridge uses bonding material to attach the framework of the bridge to the abutment teeth with little or no removal of the natural tooth structure.
 - C** The photographs and radiographs indicate that the missing teeth on the mandibular left side have been replaced with a fixed partial denture. The two denture retainers are attached to the abutment teeth at each end of the bridge; and two pontics restore the space left by the missing molars.
 - D This patient's removable partial denture has been constructed to restore function to the mandibular right side. The radiographs indicate that the left side has been restored with a fixed bridge.
7.
 - A A post is placed into an endodontically treated root canal for the purpose of retaining a core buildup to support a crown restoration. A post-and-core restoration can be placed only into a root canal that has undergone endodontic therapy. The radiographs do not indicate root canal therapy on the mandibular right premolar. Additionally, the core serves to build up the tooth to accept a crown, but once the crown is placed into permanent position, the core would no longer be visible and would not extend out of the top of the metal crown.
 - B,C,D The metal depression in the crown surface has been specifically constructed to accept the rest of the partial denture clasp to aid in retention of the appliance. This normal appearing construction should not be confused with stain accumulation, an amalgam restoration, or a defect in the crown.
 - E** This portion of the crown has been specifically constructed to assist with retention of the partial denture. This precision attachment serves to accept the rest portion of the clasp on the partial denture and should not be confused with a defect of the crown.
8.
 - A Depending on the size and location, tori may make vertical placement of the long dimension of the image receptor difficult. When tori are expected to interfere with placement of the image receptor, a horizontal bitewing may be recommended.

- B** Placing the long dimension of the image receptor vertically increases the amount of alveolar bone recorded on a bitewing radiograph. Vertical bitewing radiographs are recommended for the periodontally involved patient when imaging more alveolar bone is desired.
- C A hypersensitive gag reflex may be stimulated by placement of the image receptor. It is often when the image receptor contacts the posterior region of the hard palate or soft palate that a gag reflex is stimulated. The placement most likely to elicit a gag reflex is the posterior periapical radiograph. However, placing an image receptor for a vertical bitewing radiograph with the long dimension positioned vertically could increase the likelihood of contacting the sensitive posterior region of the oral cavity, and may actually increase the likelihood of stimulating a gag reflex over a horizontal bitewing.
- D The vertical placement of an image receptor for a bitewing radiograph is not likely to increase patient comfort. In fact, placing the longer dimension of the image receptor vertical is more likely to decrease comfort.
- E Vertical bitewing radiographs are recommended for any patient when an increased image of alveolar bone is desired.
9. **A** The normal radiographic appearance of the coronoid process of the mandible is a faint radiopaque, sometimes triangular-shaped process observed in the far posterior on maxillary molar periapical radiographs.
- B The maxillary tuberosity can be observed in this region posterior to the maxillary second molar. However, the landmark pointed out is the coronoid process of the mandible, superimposed over the maxillary tuberosity.
- C The lateral pterygoid plate may be recorded when the maxillary molar periapical radiograph is positioned quite far posteriorly. Often the suture that separates the maxilla and the lateral pterygoid plate can be used to help distinguish between these two structures. However, the lateral pterygoid plate is not imaged on this radiograph.
- D The structure pointed out in this radiograph is the normal radiographic appearance of the coronoid process of the mandible. This landmark should not be confused with other structures. This answer tries to wrongly insinuate that the patient's finger was used to hold the image receptor in the patient's mouth and therefore was recorded onto the resulting image.
- E The mandibular condyle is positioned too far posterior to be recorded onto any intraoral radiograph. The mandibular condyle should not be confused with the coronoid process of the mandible.
10. **A, B, C, D, E, F, G** It is assumed that film fog or electronic noise (digital imaging) has caused the low-contrast images. Film fog or electronic noise results from each of these.
- H Exposing the back of a film packet places the lead foil in the path of the primary beam. Because the lead foil absorbs a portion of the x-rays, the radiograph will appear lighter and this lighter image can be described as low contrast. However, because the lead foil has an embossed pattern, this pattern would be observed on the radiograph indicating the accidental backward placement of the film in the oral cavity.
- I Exposing the back of a digital sensor incorrectly places the sensitive electronic chip away from the radiation source, resulting in no image recorded.
11. **A** Turning on the overhead white light in the darkroom before the film has completely entered the automatic processor will result in an accidental white light exposure to that portion of the film remaining outside the processor. However, the normal radiographic appearance of the inferior border of the mandible should not be confused with this film handling error.

- B Most manufacturers of digital imaging systems that use photostimuable phosphor plates (PSP) recommend that the plates be shielded from bright light by placing in the manufacturer's light-tight box, or by placing face down on the counter until ready for the laser scanning step. Leaving the plates on the counter face up can cause a loss of, or a lightening of, the captured images.
 - C Positioning the open end of the PID at an increased distance from the patient and/or the image receptor decreases the amount of radiation reaching the image receptor resulting in a light, or less dense, image.
 - D Conecut error results in a clear, or blank, region where no radiation reached the image receptor.
 - E** An increased vertical angulation, directed from an inferior position, caused the lower border of the mandible to be recorded more superiorly on the resultant radiograph.
12. A,B Aricept and Risperdal put the patient at risk for orthostatic hypotension after lying supine in the treatment chair. Additionally, vital signs should be monitored at each appointment because of the possible effects of these drugs on the cardiovascular system.
- C** It has been reported that patients taking bisphosphonates such as Fosamax have a low but significant risk of developing osteonecrosis of the jaws, either after oral surgical procedures or spontaneously.
 - D Calcium supplements do not have adverse effects on the oral cavity or dental and dental hygiene procedures.
13. A,B,D These answers are incorrect, as explained next.
- C** Allowing biofilm and debris to accumulate on the partial denture, especially in the area of attachment to the natural teeth, will most likely contribute to a decline in health for the natural teeth. Because the partial denture depends on the stability of the mandibular right second premolar, maintaining the health of this natural tooth is important.
14. **A** A clasp brush is ideal for cleaning the inside surfaces of the metal clasp of the removable partial denture.
- B Using the same toothbrush for cleaning both the appliance and the natural teeth is not recommended. The toothbrush filaments are easily damaged by the metal framework and clasps of the appliance, diminishing the effectiveness of the toothbrush for removing biofilm from the natural teeth.
 - C A power toothbrush has the potential to catch on the metal framework and clasps and possibly damage the appliance. Therefore, a power toothbrush is not recommended for cleaning a partial denture.
 - D,E An interproximal brush and an end-tuft brush are designed for specific purposes in removing biofilm from natural teeth. Although these may be considered for use in cleaning removable dentures, the clasp brush, designed specifically for this purpose, is the best choice.
15. A The patient with Alzheimer's disease will require assistance to maintain oral self-care throughout the progression of the disease. Asking permission to include her caregiver in the education process shows respect for, and maintains the dignity of, the patient.
- B Because this patient wears glasses, it is important that she use them to better understand the oral self-care instructions given in the treatment chair. The patient should be instructed also to wear her glasses at home during self-care so that she can evaluate her effectiveness.

- C Eliminating distracting background noise and facing the patient when speaking assists with communicating with elderly patients and with patients who may be easily confused in the dental hygiene treatment room environment.
 - D** Oral self-care instruction should build on what the geriatric patient has spent a lifetime learning. An attempt should be made only to change or stop detrimental habits. Additionally, during the early stages of Alzheimer's disease the patient will likely begin to exhibit difficulty in learning and retaining new information. Because this patient is already comfortable using an oral irrigator, she will most likely respond best to encouragement to continue doing what is familiar.
 - E Implementation of oral self-care at the same times each day helps maintain a routine that may contribute to a comfortable familiarity with the procedures, and may assist with helping this patient remember to perform the skills.
- 16.
- A This patient's multiple composite and porcelain restorations and the generalized exposed root surfaces contraindicate using the air polisher.
 - B Current evidence-based practices do not contraindicate soft tissue manipulation such as subgingival scaling and root planing in patients taking the bisphosphonate Fosamax.
 - C Because she is taking the bisphosphonate Fosamax, this patient should be cautioned against elective periodontal surgery such as a dental implant.
 - D Because of the possible adverse effects of both Fosamax and Risperdal on the GI system, a semisupine position in the treatment chair is recommended. Additionally, Aricept and Risperdal increase the occurrence of orthostatic hypotension, when moving from a completely supine position to sitting upright. Maintaining a more upright position during treatment may help reduce this occurrence.
 - E** If needed, medications such as short-acting benzodiazepines are recommended for the patient with Alzheimer's disease prior to the appointment. For the patient with Alzheimer's, the dental hygiene treatment room can become unfamiliar and the patient can feel threatened or frightened by this disorientation. Reducing the fear experienced through the use of antianxiety medications can help manage treatment.
- 17.
- A Total loss of attachment is calculated by adding to, and not by subtracting from, the loss from recession to the measurement of the pocket depth.
 - B To determine the total loss of attachment, the 1-mm probing depth must be added to the 6-mm recession measurement.
 - C** Total loss of attachment is calculated as the sum of the measurement (in millimeters) of the loss observed from the CEJ (clinically observable due to recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 6 mm is given as the measurement of recession (from the CEJ to the free gingival margin.) To this 6 mm, the probing depth (pocket measurement) of 1 mm is added for a total loss of attachment (sum) of 7 mm.
 - D Adding the 1-mm probing depth measurement to the 6 mm of recession equals a 7-mm total loss of attachment.
- 18.
- A** A periodontal splint has been placed to stabilize the mandibular incisors. The lingual metal wire connected to these teeth with a bonding material is holding the teeth in a fixed position.
 - B Fosamax, the medication this patient is taking for management of her osteoporosis, inhibits osteoclast cells from breaking down bone. This interruption is directed at preventing further bone loss caused by osteoporosis. Fosamax will not regenerate bone and is not responsible for reducing the mobility of the mandibular incisors.

- C Effective oral self-care is certainly important in maintaining the health of the periodontal splint, but is not responsible for reducing the mobility of the mandibular incisors.
 - D The patient may have had periodontal resective and/or regenerative surgical intervention in this region to reduce pocket depths and provide access for cleaning. However, it is the placement of the periodontal splint that is maintaining the teeth in a fixed and stable position.
 - E Regular maintenance appointments have helped this patient maintain her natural dentition in good function. However, it is the placement of the periodontal splint that is maintaining the teeth in a fixed and stable position.
19. A Scrub-method brushing technique often leads to recession and abrasion of the tooth structure, especially on the facial surfaces at the cervical region of the teeth. Although toothbrushing may have contributed to facial abrasion of these teeth, the diminished width contributing to the hourglass shape exhibited by these teeth is the result of aggressive scaling.
- B** Repeated, aggressive scaling over time has diminished the width of these teeth. The goal of scaling and root planing is to remove calculus and cementum from the root surfaces. Although it was thought that bacterial products were held by the cementum, it is no longer considered necessary for aggressive removal of cementum.
- C The outer surface of tooth enamel can be removed during polishing. The amount removed depends on the coarseness of the polishing agent and the pressure used during polishing. However, the diminished width contributing to the hourglass shape exhibited by these teeth is the result of aggressive scaling and root planing.
- D Congenital defects such as enamel hypoplasia that change the shape and appearance of the crowns of the teeth should not be confused with the reduced cementum and dentin that have diminished the width of these teeth as a result of aggressive scaling and root planing.
- E Chemical erosion caused by contact of the tooth surfaces with acids such as those found in carbonated beverages, lemons and lemon juice, or via chronic vomiting should not be confused with the characteristic hourglass shape of teeth that have undergone aggressive scaling and root planing.
20. **A** Older adults often do not have the same tooth sensitivity found in younger patients because of the formation of secondary or reparative dentin over many years. Pulpal recession and decreased cellularity contribute to a decrease in the number of nerve fibers in the pulp. Therefore, debridement with hand instruments is not likely to elicit hypersensitivity of tooth root surfaces. This secondary dentin does not protect a patient from decay of the tooth root surfaces. Because root caries account for a large proportion of caries found in older adults, meticulous home care should be maintained and fluoride therapies should be implemented to help minimize this risk.
- B,C,D These answers are incorrect, as explained previously.
21. A,E A 0.05% sodium fluoride over-the-counter mouth rinse and a 0.76% sodium monofluorophosphate dentifrice should be recommended for all patients at risk for caries. This patient's risk factors include root surface exposure due to recession; extensive restorations that have the potential for recurrent decay; difficult to clean and maintain removable and permanent appliances; and potential of Alzheimer's disease to diminish her ability to maintain daily oral self-care.
- B,C Because of the risk factors this patient presents with—including root surface exposure due to recession, extensive restorations that have the potential for recurrent decay, difficult to clean and maintain removable and permanent

appliances, and potential of Alzheimer's disease to diminish her ability to maintain daily oral self-care—she should receive professionally applied fluoride treatments, especially following debridement and polishing procedures that may reduce the fluoride-rich outer tooth structure. Two application choices that are appropriate for this patient are 2% sodium fluoride gel tray application and 5% sodium fluoride varnish treatments.

- D** Acidulated phosphate fluoride should be avoided in the patient with porcelain and composite restorations.
22. A,B Sodium hypochloride and acetic acid will corrode the metal framework of the appliance and therefore are contraindicated for cleaning this patient's removable partial denture.
- C Hot water may cause warping or distortion of the plastic resin base of the denture and therefore should be avoided.
- D** An alkaline detergent such as hydrogen peroxide helps loosen debris and light stains. Many commercially available denture cleaners use sodium perborate or percarbonate and are recommended for regular use to help prevent the buildup of heavy stains.
- E There are a number of safe commercially available products made especially for cleaning removable partial dentures with metal framework and clasps. The use of household scouring abrasive has the potential to scratch the plastic resin base and/or acrylic teeth of the denture and therefore should be avoided.
23. A Since 2003, prophylactic antibiotic premedication was not indicated for dental patients whose joint replacement surgery was completed over 2 years ago, with no complications or subsequent infections. In February 2009 the American Academy of Orthopaedic Surgeons (AAOS) issued a recommendation that clinicians consider prophylactic antibiotic premedication for all dental patients with a joint replacement, regardless of when the replacement surgery occurred. However, there is concern regarding the benefits and risks of protection versus drug reactions and the proliferation of drug-resistant bacterial infections with this practice recommendation. At the time this book was published, the American Academy of Oral Medicine (AAOM) and the AAOS were collaboratively studying the need for a consensus statement regarding prophylactic antibiotic premedication for dental patients with a joint replacement. The current lack of a consensus should be discussed with the patient. The reader should be aware of changes in this recommendation that may occur after publication of this book.
- B The link between osteoporosis and periodontal disease is still unclear at the present time. Although some studies reveal a connection between alveolar bone lost in proportion to the severity of periodontal disease and the imbalance observed in osteoporosis of resorbing bone and the laying down of new bone, other studies have produced inconclusive results. Until conclusive evidence is presented, the understanding that both periodontal disease and osteoporosis share common risk factors should be communicated to the patient and her caregivers.
- C** There is no link between the calcium carbonate supplements taken by the patient and the formation of dental calculus deposits.
 - D Although this patient appears to have had her periodontal condition treated and stabilized before beginning bisphosphonate therapy, the importance of maintaining oral health to avoid the need for future invasive treatment should be explained in relation to her risk of developing osteonecrosis of the jaws.
 - E Because of the progressive nature of Alzheimer's disease and the declining ability to adequately perform oral self-care, both the patient and her caregiver should actively participate in learning how best to manage oral self-care to maintain oral health.

24. A,C,D These answers are incorrect, as explained next.

B Many terms and categories have been applied to various age groups of older adults. Although traditionally, those aged 65 and older have been referred to as elderly or seniors, with the average age of those 85 years of age and older continuing to rise, several other classifications have developed. Researchers have referred to those aged 65 to 74 as elderly or young old; those aged 75 to 84 have been categorized as old or aged; and those aged 85 and older as old, old or very old. These categories are used to help define demographics and lay the foundations for research, and are not a form of ageism. Ageism refers to negative discrimination toward older adults. Functionally dependent refers to a person who, like this patient, is able to perform life functions but must still depend on the supervision of her caregiver to maintain this functionality.

25. A,B Although bonding agent treatments are available to restore an esthetic appearance to this restoration, these treatments do not hold up as well as the original bonded porcelain. If a patient is concerned with the appearance or insists on restoring the appearance of failed porcelain, the best course of action would be to replace the entire bridge, which is not an easy course of action for this patient.

C The stress and risks involved with removing the cosmetically defective crown and replacing with a new fixed bridge outweigh the benefits of this complex and expensive treatment.

D The cantilever bridge was removed from the mandibular right side because it was loose and endangering the periodontal stability of the mandibular right second premolar. The lack of a molar tooth to support the posterior portion of a fixed denture in this region is the most likely reason that a removable partial denture was made to restore function to the patient's right side. In later stages of Alzheimer's disease the patient is most likely to find it difficult to care for and keep track of a removable appliance.

E The chipped and fractured porcelain on the facial surface of this porcelain-fused-to-metal crown has exposed the oxidized metal of the crown. The damage to this restoration is cosmetic and not functional. The expenditure for the family in time and travel to accompany the patient to the practice for multiple appointments, the chair time demands on the patient, the possible stress on the patient to adjust to wearing a temporary appliance and to accepting the fit and feel of the new appliance, the stress on the stability of the periodontium, and the financial commitment all must be weighed in relation to the risks and benefits of the treatment plan.



PART V SPECIAL NEEDS PATIENTS

CHAPTER 12 CASE J THOROUGHGOOD EPPS

1. **A** The teeth that support a fixed bridge are called abutments. In this case, both the maxillary second molar and the maxillary second premolar serve as abutments for this three-unit bridge.

B A pontic refers to that part of the bridge that replaces a missing tooth. In this case, the missing maxillary first molar has been restored with the pontic of this three-unit bridge.

C A retainer refers to the crown portion of the bridge that retains or attaches the bridge to the natural tooth, or abutment.

- D A cantilever bridge is attached to a fixed crown on only one side.
 - E A rest refers to that portion of a removable partial denture clasp that contacts the natural tooth for stability.
2. **A** G. V. Black established the standard for classifying caries in the early 1900s. This system has since been customarily used for cavity preparations and restorations as well. The mandibular left first molar presents with a Class I restoration, involving the pits and fissures only of this tooth.
- B A Class II restoration involves a proximal surface of a posterior tooth.
 - C A Class III restoration involves the proximal surface, but not the incisal surface of anterior teeth.
 - D A Class IV restoration involves both the proximal and the incisal surfaces of anterior teeth.
 - E A Class V restoration involves the facial or lingual smooth surface of a tooth near the cementoenamel junction (CEJ).
3. A,E This permanent restoration is sound and should not be suspected of failure or confused with a temporary restorative treatment. The attachment of the bridge to the adjacent implant/natural tooth on one side only is characteristic of a cantilever bridge.
- B** The left side of the implant consists of a cantilever pontic that is attached to the fixed bridge on one side only.
 - C The mandibular left first premolar is clinically not present. It is most likely that this tooth was extracted and/or avulsed during trauma and then restored with the placement of the cantilever pontic.
 - D A cantilever bridge consists of a permanent attachment to the implant or natural tooth on one side only. There is no need for a clasp attachment on this side of the bridge.
4. 1. **D** The mandibular canal is often recorded on a panoramic radiograph near the angle of the mandible extending to the premolar–molar areas below the apices of the teeth. The mandibular canal allows for the passage of the mandibular nerve and blood vessels so it appears radiolucent. The two paired, thin, barely visible, parallel radiopaque lines represent the thin layers of cortical bone that outline the canal walls.
2. **G** The maxillary sinus appears on a panoramic radiograph as a large bilateral radiolucency. The thin, radiopaque sinus cavity walls outline the structure.
3. **E** Conchae are the thin, bony extensions of the nasal cavity walls. Depending on the angle of the x-ray beam, the nasal conchae appear slightly to moderately radiopaque.
4. **B** The hard palate, a bony wall that separates the oral cavity from the nasal cavity, appears as a horizontal, thick radiopaque band superior to the maxillary teeth.
5. **F** The oblique ridge is a continuation of the anterior border of the ramus that extends downward and forward on the lateral surface of the mandible. It appears as a radiopaque line of varied width superimposed across the mandibular molar roots.
6. **A** The mandibular condyle is a radiopaque rounded bony process extending from the posterior superior border of the ramus of the mandible that articulates with the glenoid fossa of the temporal bone. This is the normal radiographic appearance of the condyle.
7. **C** The faint bilateral, horseshoe-shaped structure observed inferior to the mandible on a panoramic radiograph is the normal radiographic appearance of the hyoid bone.

5.
 - A Endodontic implants are placed through the root canal of an endodontically treated natural tooth and out the apex. Endodontic implants are not commonly used because of the potential for root fractures and resorption.
 - B Subperiosteal implants are inserted under the periosteum but over the bone.
 - C Transosteal implants, also referred to as a mandibular staple, are placed completely through the mandible from under the chin into the oral cavity.
 - D** The radiographs reveal an endosteal or endosseous implant placed within the bone.
 - E A post-and-core restoration is not used as an implant. A post is placed into an endodontically treated root canal for the purpose of retaining a core buildup to support a crown.
6.
 - A Blade implants present with a unique larger sized shape used for a fibrous attachment to the bone. The use of blade implants has greatly declined.
 - B** The radiographs reveal the typical cylinder shape of these dental implants.
 - C Transosteal implants utilize a mandibular staple implant that penetrates through the mandible from under the chin.
 - D Plate-form implants refer to those used to anchor transosteal implants.
 - E The radiographs reveal the typical cylinder shape and not a screw shape of these dental implants.
7.
 - A,D This normal appearance of the submandibular fossae regions should not be confused with pathology or radiographic error.
 - B Superimposition of several structures imaged in the same place would produce a lighter, or more radiopaque result and not this radiolucent appearance.
 - C** On most panoramic radiographs, a negative shadow occurs where there is an absence of superimposition of structures. In the anterior region of the panoramic image there is superimposition of the anterior jaws and teeth with the spinal column and back of the skull. On the left and right sides of the panoramic image there is superimposition of the left and right jaws with the ghost images of the jaws of the opposite sides. In addition to the submandibular fossa region being less dense, there is a lack of superimposition of other structures, allowing more radiation to penetrate and reach the image receptor creating the darker areas noted.
 - E This normal appearance of the submandibular fossae regions should not be confused with accidental exposure to white light. Additionally, it would be difficult to open a film cassette and to create the exposure in this pattern.
8.
 - A** The pulp of this tooth has produced reparative dentin in response to trauma, probably due to the size and location of the restoration. The pulp chamber of this tooth appears smaller because of the amount of this secondary dentin.
 - B Enamel pearls are found in the furca of multirooted teeth and not within the pulp chamber.
 - C Condensing osteitis is a bone condition and would be observed around the root apices of the affected tooth.
 - D Hypercementosis would appear as an excess growth of cementum, causing the roots to appear enlarged and bulbous.
 - E Dens invaginatus, essentially a tooth within a tooth, is an invagination of enamel, dentin, and pulp within the pulp chamber of the maxillary lateral incisors. When present, it often occurs bilaterally.
9.
 - A,B,C,E These conditions are not adverse reactions directly related to NSAIDs, acetaminophen, or topical trolamine salicylate.
 - D** Nonsteroidal anti-inflammatory drugs (NSAIDs) are reported to cause xerostomia.

10.
 - A Wooden wedges specifically designed for oral self-care would most likely be a good choice to recommend for this patient to replace his, possibly incorrect, use of toothpicks.
 - B Although his use of toothpicks should be evaluated for proper use, a holder designed specifically for oral self-care in conjunction with a wooden pick would most likely be more effective and less likely to damage the soft tissue structures of the periodontium than his use of toothpicks alone.
 - C An end-tuft brush is probably the best choice of oral hygiene aids listed to recommend for this patient. End-tuft, or single-tuft, brushes are adaptable for use in open contacts, wide embrasures, around and, when possible, under the fixed bridge and implant abutments without risk of harm to the tissues or restorations.
 - D** The interproximal brush is most likely to be constructed of nylon filaments wound around a metal wire core. Dental implants are easily scratched by this metal, therefore any oral hygiene aid should be inspected thoroughly for metal components before being recommended for the patient with dental implants.
 - E Correct use of tufted floss can effectively remove plaque from multiple problem areas such as implant abutments, fixed bridges, and open contacts. Although it may be unlikely that this patient will be able to fit the yarn portion of tufted floss under the implant superstructure, tufted floss products have a section of regular floss for interproximal plaque removal needs as well.
11.
 - A The joints affected by osteoarthritis may be aggravated by changes in body weight and pressure of the body weight on the affected region. The dental chair should be adjusted for the least amount of weight being placed on cervical spine C3 to C7 vertebrae. Although the patient may be questioned for feedback, a semisupine position is likely to be acceptable.
 - B,C Providing physical supports and allowing for frequent position changes in the treatment chair will assist with making the patient comfortable for the duration of the appointment.
 - D Scheduling short appointments will assist with managing patient comfort.
 - E** The patient with osteoarthritis is more likely to feel pain and stiffness in the morning or after a period of inactivity such as sleeping. Although not likely to last as long as the pain and stiffness experienced with rheumatoid arthritis, later in the day, after activity, may be a better time to schedule appointments for this patient.
12.
 - A One oral prophylaxis appointment is not likely to address the need for a thorough periodontal assessment and to perform nonsurgical periodontal therapy for this patient. Reevaluation of the pocket depths and bleeding should occur at an interval of 4 to 6 weeks.
 - B Full-mouth disinfection is thought to assist with preventing the pathogens from unscaled regions from reinfecting scaled regions by removing as many pathogens from the oral cavity as possible at one time. Based on his periodontal status, this patient would not be a candidate for this procedure. Additionally, the long appointment may be difficult for this patient to tolerate.
 - C** Based on the periodontal status, amount and location of calculus, presence of complex restorations, and the patient's medical status, one 1-hour appointment for full-mouth debridement and one 45-minute appointment 7 to 10 days later to evaluate tissue response and to instrument if inflammation persists is appropriate. Reevaluation of the pocket depths and bleeding should occur at an interval of 4 to 6 weeks.
 - D Based on his periodontal status, this patient would not be a candidate for two half-mouth periodontal debridement appointments. Additionally, the long appointments may be difficult for this patient to tolerate.
 - E Scheduling four quadrant scale and root debridement appointments seems unnecessary given this patient's periodontal condition.

13.
 - A Area-specific curets are most often used for root debridement in periodontal pockets, and require frequent and time-consuming instrument changes to effectively debride all regions of the oral cavity. The amount and location of calculus in shallow pockets indicates that universal curets would be an effective and efficient choice for this patient.
 - B** For slight calculus and shallow pocket depths, the universal curet can be used to effectively remove supragingival and subgingival deposits in all regions of the oral cavity, eliminating the need to switch instruments.
 - C The extended shanks of modified curets allow for debridement of root surfaces in deep periodontal pockets not observed in this patient. As with standard area-specific curets, modified curets require frequent and time-consuming instrument transfers.
 - D Sickie scalers are used to debride superior to the gingival margin and would most likely not be effective in removing subgingival calculus for this patient.
 - E Periodontal files are used to prepare large accumulations of calculus for removal by another instrument. This patient does not present with large deposits that would necessitate the use of periodontal files.
14.
 - A** Dental implants are easily scratched by metallic instruments of a hardness greater than the implant material.
 - B,C,D,E Instruments selected for use around dental implants should be softer than the implant material. Plastic, gold-tipped, nylon, or graphite instruments are indicated for use around dental implants.
15.
 1. **A** Under anesthesia, the periosteum is exposed and a template is fabricated for the purpose of guiding the location and direction for drilling the hole into the bone that will receive the implant anchor.
 2. **D** Once the hole is drilled into the bone, the implant anchor is placed into the hole and sutured over. The implant anchor is left in place for 3 to 6 months for mandibular implants and 4 to 6 months for maxillary implants for osseointegration to take place.
 3. **B** After osseointegration takes place, the implant anchor is exposed so that the implant abutment can be attached to the anchor.
 4. **E** A healing cap is affixed to the abutment and the periosteum is sutured around the abutment and healing cap.
 5. **C** Two to 4 weeks after placing the implant abutment the healing caps are removed and fabrication of the restorative appliance can take place.
16.
 - A,B Four to 6 weeks is an ideal reevaluation interval for all patients who initially present with inflammation or poor oral self-care. This patient was most likely scheduled within this time frame to evaluate initial placement of the dental implant, and for a reevaluation of dental hygiene treatment following the initial periodontal debridement appointment after not having professional care in the past 10 months. However, the interval time for his next appointment should be based on findings at the reevaluation appointment.
 - C Following initial reevaluation and successful stabilization of the dental implant, it is recommended that periodontal maintenance appointments be scheduled for 3-month intervals for the first year after dental implant surgery.
 - D Based on this patient's initial evaluation, reevaluation, and complex restorative treatment, 6 months will most likely be too long of an interval to maintain oral health.
 - E** This patient reports having dental implants placed 3 years ago. A personalized appointment plan based on his needs at each appointment may be developed at this time. His recommended recall interval should be based on evaluation of peri-implant and periodontal tissues, compliance with oral self-care recommendations, and effectiveness of biofilm control.

17. A Evaluation of tissue response to periodontal debridement and implementation of oral self-care at 6 weeks is an appropriate interval in which to observe tissue healing. In fact, a generalized improved tissue condition is noted by the reduction in probing depths in other regions.
- B** The best explanation for the localized lack of tissue response is that bacteria from the carious lesion observed radiographically on the distal of the mandibular left premolar may be causing continuous reinfection (seeding) of the gingiva in the adjacent area.
- C Exposure to ionizing radiation from diagnostic medical and dental radiation would not affect tissue healing.
- D Undetected systemic conditions that may influence gingival health would most likely have a generalized manifestation.
- E Inappropriate toothpick use can result in trauma to soft tissue, and more frequently, damage to the papilla, but is less likely to increase the pocket depth observed at the reevaluation appointment. It is more likely that the caries present on the distal occlusal of the mandibular left premolar may be causing continuous reinfection of the periodontal tissues in this region.
18. A,B Diseased tissue may not reveal changes in color or gingival contour.
- C** The best indicator of implant success is lack of mobility indicating that osseointegration was successful.
- D Unless the baseline probing depths at the time of final delivery of the implant superstructure are available, probing depths at subsequent intervals cannot be reliable indicators of implant success or failure. Additionally, probing dental implants in the absence of conditions that evoke disease, such as bleeding and inflammation, is controversial in that peri-implant tissues adhere to the implant differently than periodontal tissues adhere to the tooth surface.
- E In addition to the question of whether to probe around dental implants, bleeding may be related to probing force and wounding of the tissue, and therefore is not an ideal indicator of healthy or diseased peri-implant tissue.
19. A Based on this patient's age and condition of his remaining unrestored teeth (the premolars), pit and fissure sealants would not be significantly beneficial.
- B The direct, local application of chlorhexidine to the peri-implant tissues would better meet this patient's needs at this time. Fluoride application is not likely to remineralize the caries observed. If future development of new caries is observed, or recurrent or root caries present in the future, a fluoride treatment may be indicated.
- C** Directly applying chlorhexidine to the peri-implant tissues via an end-tuft brush or tufted floss can effectively minimize biofilm accumulation and reduce inflammation.
- D This patient's dental implant-supported superstructure does not leave much room to safely direct oral irrigation under the restorative superstructure and not at the peri-implant tissues. Directly applying a chemotherapeutic agent, such as chlorhexidine, with an end-tuft brush is the better recommendation in this case.
- E Potassium oxalate is an ingredient in desensitizing agents and does not appear to be indicated for use by this patient.
20. A Although this patient is currently taking a medication that puts him at risk for xerostomia, he is not likely to develop a severe case, nor is he to remain on the drug for very long, as it is prescribed for short-term use in response to acute pain.
- B** Acidic fluoride may corrode titanium implants. Only neutral sodium fluoride at low concentrations should be recommended.
- C,D,E These agents, although not necessarily recommended at this time, present no contraindications for use by this patient.

21.

A A slim-diameter, or periodontal tip, insert is made of a metal harder than the dental implant. Because of the potential to scratch the surface of the implant, the use of metal instruments is contraindicated.

B Although some studies contraindicate the use of the air polisher on dental implants, others have found it to be safe and effective at removing deposits. Appropriately directing the spray away from the gingival margin with a light, sweeping motion would not be contraindicated. In this list of devices, the metal slim-diameter ultrasonic tip is the more obvious contraindication.

C Tin oxide appropriately applied with a rotary rubber cup is safe and effective at removing light stain from dental implants.

D Using a specially designed plastic tip sleeve over a sonic or ultrasonic instrument allows the safe use of these instruments for removing deposits from dental implants.

E Nonabrasive paste applied with dental tape is especially useful for removing stains from surfaces not easily accessible by other means.
22.

A,B,C,E Even though all three—dentist, dental hygienist, and patient—play a role in helping establish an effective oral self-care routine, it is the patient who is ultimately responsible for his oral health.

D The dental hygienist and dentist are responsible for providing the information and education the patient needs to develop his goals for oral health; and both are responsible for providing supportive care as needed. However, the patient is ultimately responsible for maintaining his oral health.
23.

A Immediately following placement of the final restoration of the dental implant superstructure, radiographs should be taken every 3 months for the first year.

B Bitewing radiographs are recommended every 6 to 18 months for adult recall patients who present with signs, symptoms, or risk factors for caries. This recommendation for detecting caries should not be confused with the recommendation for radiographs to evaluate dental implants.

C After the first year of placement of the dental implant, radiographs should be taken once a year. Findings should be compared with the baseline images.

D Bitewing radiographs are recommended every 24 to 36 months for adult recall patients who present with no signs, symptoms, or risk factors for caries. This recommendation for detecting caries should not be confused with the recommendation for radiographs to evaluate dental implants.

E After the first year of placement, radiographs should be taken once a year to evaluate dental implants even when there are no signs or symptoms of failure. Radiographs should not wait until problem signs are observed clinically.
24.

A The patient's medical condition must be assessed to determine if conditions exist that will contribute to implant surgery failure. Conditions that contribute to poor healing or rejection of the implant such as diabetes and immunocompromising diseases would contraindicate the placement of implants.

B The patient must present with the psychological ability to undergo treatment for placement of dental implants, and be motivated to learn and use meticulous oral self-care skills.

C Because of the relationship between smoking and periodontal health and healing, osseointegration of the implant is likely to be jeopardized in a smoker. Smoking will play a role in the decision to treatment plan for placement of an implant.

D A thorough assessment of the bone in the site selected for placement of the implant is paramount. The bone height, width, contour, and density must be able to support the implant.

- E** DNA testing for periodontal pathogens continues to be developed and implemented. However, genetic testing would not likely be considered before placement of a dental implant.
25. A,C,D,E These design features all provide a harbor for the accumulation of biofilm and debris and make access for effective self-care difficult.
- B** The left side of the implant consists of a cantilever pontic that is attached to the fixed bridge on one side only. This cantilever design should not be considered a mistake in design.

CHAPTER 13 CASE K JOHNNIE JOHNSON

1. **A** Nicotine stomatitis is characterized by red raised dots at the openings of minor salivary gland ducts on the hard palate. Cigarette smoking is associated with these lesions and should be distinguished from the other conditions.
 - B Hyperkeratosis presents as white lesions on the oral mucosa.
 - C Pyogenic granuloma presents as a single red lesion on the oral mucosa.
 - D Kaposi's sarcoma is purplish in color and is found on the hard palate or gingiva.
 - E Although burn trauma from hot foods may appear similar, this patient's history of tobacco use should be taken into consideration.
2. **A** The free or marginal gingiva appears at the gingival crest nearest the incisal or occlusal edge of the tooth and is covered by the oral epithelium.
 - B The paler pink attached gingiva is differentiated from the alveolar mucosa by the mucogingival line.
 - C The masticatory mucosa covers the gingiva and hard palate.
 - D** The alveolar mucosa lines the inner surface of the lips and cheeks. This tissue is not attached to the underlying structures, and blood vessels located beneath make this area appear redder in color than the nearby masticatory mucosa.
 - E The junctional epithelium is not visible clinically as it is located at the base of the sulcus.
3. **A** Glass ionomer is often used as a caries preventive sealant or as a cervical restoration in the older patient with a high risk of root caries. Multipurpose composite restorations provide better esthetics than glass ionomers and better meet the need for restoring the large caries affecting this patient's anterior teeth.
 - B Acrylic and silicate resins were first introduced as dental restorations in 1878. These materials proved to have dimensional instability that led to staining and recurrent caries. The use of these materials has been replaced by composite.
 - C Porcelain bonding is dental ceramic used to fabricate veneers, or nonmetal crowns. Porcelain veneers are manufactured in a dental laboratory and require significant tooth preparation before placement.
 - D Dental ceramic refers to a restoration that uses nonmetallic materials such as porcelain to make crowns, onlays, inlays, and veneers. These restorations are manufactured in a dental laboratory and require significant tooth preparation before placement.
 - E** These teeth exhibit multipurpose composite restorations that can provide this patient with a cost-effective tooth-colored restoration for esthetic purposes.
4. **A** Use of multiple antacids is not a risk factor for oral cancer. If chewable and formulated with sugar, use of these products throughout the day may increase this patient's risk for caries.
 - B** Research provides strong evidence for the relationship between smoking and alcohol ingestion and the development of squamous cell carcinoma.

C,D Xerostomia conditions and high pulse and respiration rate are not risk factors for oral cancer.

E Rampant caries with abscesses may be creating a low grade infection. However, caries would not be considered a risk factor for oral cancer.

5. A,B,C,E Each of these conditions (hand tremors, rapid pulse rate, xerostomia, and swollen parotid glands) especially when observed in combination is associated with heavy alcohol use and can be considered symptoms of alcohol withdrawal syndrome.

D This patient reports using over-the-counter medications to alleviate his stomach problems. Although his use of these products is frequent, it is in response to stomach irritation most likely caused by excessive alcohol use and not as a result of alcohol-induced craving.

6. **A** Chronic alcohol use frequently causes benign bilateral parotid swellings called sialadenosis. Reduced salivary output or xerostomia allows for the overgrowth of oral microorganisms leading to caries. However, dry mouth conditions are not responsible for the spread of caries from tooth to tooth. Carious lesions begin within the enamel and progress into the tooth tissue.

B,C,D,E These answers are not correct as explained previously.

7. **A** Cigarette smoking can contribute to changes in the appearance of the tissues in the oral cavity. However, the most common effect on the papillae of the tongue is staining.

B,D The excessive use of some medications, such as antacids, and alcohol may interfere with the normal absorption and metabolism of folate resulting in a folic acid deficiency. Although the use of these drugs plays a role in creating the condition for the effect on the tongue, the direct cause is the folic acid deficiency itself.

C The burning sensation symptoms and the red tip and lateral borders of the tongue indicate a folic acid deficiency.

E A geographic tongue occurs in some patients as a normal condition. The papillae on the dorsum of the tongue in certain regions appear smooth and less raised. This pattern changes over time. There is no pain or loss of taste sensation associated with this condition.

8. **A** The extent of caries involvement evident on this tooth is most likely causing pulpal necrosis resulting in the inflammatory lesion that appears as a radiolucency at the apex indicating a periapical abscess.

B Condensing osteitis is a condition of the supporting bone and appears radiopaque.

C When inflammation becomes chronic, granulation tissue begins to infiltrate the lesion and entrapped epithelial tissue may result in the formation of an apical cyst. Although it is difficult to distinguish between a periapical abscess and cyst radiographically, the term *residual cyst* would not be applied here because the affected tooth is present. A residual cyst is left intact when the affected tooth is extracted.

D If this radiolucency had been a normal anatomic landmark, such as the lingual foramen, it would appear separated from the tooth by the appearance of an intact lamina dura. Additionally, the lingual foramen is often imaged encircled by the radiopaque genial tubercles.

E When recorded on a radiograph, the mental foramen usually appears near the apices of the mandibular first and second premolars. The mental foramen is distinguished from an abscess by the presence of an intact lamina dura separating the radiolucent mental foramen from the apex of the tooth it appears near.

9. **A,F,H** The maxillary right and left canines and the mandibular left central incisor appear sound both clinically and radiographically.

B,C,D,E Caries is evident clinically and radiographically on the maxillary right and left lateral and central incisors.

- G The mandibular left lateral incisor presents with composite restorations, which appear defective on the mesial-incisal surface.
10. A,B,D,E Both the statement and reason are correct and related as explained next.
- C** Non-alcohol-containing preprocedural mouth rinses are recommended for the alcoholic patient and the patient with xerostomia.
11. A Sunlight exposure is essential for vitamin D absorption.
- B,C Food such as organ meat and green vegetables contain folic acid. However, excessive use of alcohol tends to result in poor appetite for food. This patient may be more likely to follow protocol for taking a supplement while being counseled to develop a plan for an improved diet that also addresses his high caries risk.
- D Multiple vitamins can be recommended as well, but a folic acid supplement specifically targets this patient's deficiency.
- E** Oral signs and symptoms of folate deficiency include a red, sore, and burning tongue. The best way to treat this patient's deficiency is with a 1-mg folic acid supplement three times a week.
12. A The cost of chronic alcohol use and excessive drinking can impact an individual's finances by reducing the amount of money available to spend on oral health care treatment.
- B Chronic excessive drinking can lead to apathy regarding health issues and an inability to keep appointments and follow through with treatment.
- C** The excessive use of alcohol is not associated with respiratory conditions that would interfere with treatment.
- D When chronic alcoholism is suspected, bleeding problems may result from liver impairment.
- E Emotional instability during appointments may result when this patient is under the influence of alcohol or as the result of alcohol withdrawal.
13. A Alcohol consumption may result in poor self-care, but is not cariogenic. Consumption of alcohol mixed with beverages containing sucrose can supply fermentable carbohydrates for acidogenic bacteria to metabolize. However, the alcohol is not cariogenic.
- B** Saliva contains peroxidases, lysozymes, and specific antibodies that have anti-cariogenic properties. A deficiency of saliva allows for the overgrowth of bacteria that leads to caries development.
- C Lack of professional care did not cause the caries, but has allowed the caries process time to progress to this advanced stage.
- D Tobacco use plays a role in periodontal disease, but is not cariogenic.
- E Although poor oral self-care is a contributing factor to the accumulation of biofilms, xerostomia plays the key role in the caries process. Additionally, this patient presents with a fairly adequate ability to remove bacterial plaque.
14. **A** Because this patient exhibits signs of recent alcohol consumption and based on his reported lifestyle, alcohol withdrawal syndrome may manifest during treatment. Alcohol withdrawal may occur within a few hours after the last drink. In fact, this patient already exhibits hand tremors, nervousness, and a rapid pulse rate, all indicative of alcohol withdrawal syndrome.
- B,C,E Nothing in this patient's health history increases his risk of a possible airway obstruction, adrenal crisis, or asthma attack.
- D Although he has not indicated an allergy or past allergic reaction to agents that may be used by the dental hygienist in the treatment of his oral condition, there remains the potential of an anaphylactic reaction to a drug or agent. However, he does not present with an increased risk over that of the general population.

15.
 - A This patient recognizes and admits that the appearance of his teeth may be preventing him from securing better disc jockey jobs, which indicates his interest in achieving appropriate knowledge regarding the care of his oral health.
 - B This patient recognizes and admits that the condition of his smile is affecting his life and has made this appointment based on this primary concern.
 - C,E The nervous behavior observed is more likely physical in nature, and probably related to alcohol withdrawal. Given the evidence of extensive dental treatment in the past, fear of additional dental treatment is probably not the primary reason for the broken appointments.
 - D** Not keeping scheduled appointments is typical behavior for a patient who is a heavy user of alcohol. Because this patient's lifestyle revolves around drinking it becomes a priority for him. The difficulty for a person who chronically consumes alcohol comes from having to make appointments ahead of time. Because drinking and a drinking lifestyle take priority he cannot guarantee that he will be able to keep a scheduled appointment on any given day in the future.
16.
 - A The maxillary left canine/premolar area would be an ideal location to attain leverage for instrumentation.
 - B Using the palm of the hand to fulcrum on the patient's chin is an accepted extraoral fulcrum for the maxillary left posterior facial aspects when conditions compromise an intraoral fulcrum.
 - C** Because of the advanced state of dental caries, the maxillary left central and lateral incisors are not the best choice for a stable finger rest. These teeth have the potential to fracture with the applied pressure.
 - D Fulcruming with the ring finger resting on the index finger of the nondominate hand is an acceptable advanced fulcrum technique that can help stabilize the instrument for access to these posterior root surfaces.
17.
 - A** Phase I, the initial nonsurgical phase of periodontal therapy, consists of procedures that are designed to control or eliminate the etiologic factors of the disease process. Education and plaque control instruction occur at the beginning of this phase followed by scaling and root debridement. The purpose of Phase I therapy is to bring this patient's periodontal disease under control.
 - B Phase II or the surgical phase of periodontal therapy involves regenerative techniques to help restore periodontal tissues that have been lost because of disease. Therapy usually involves restoration and replacement of lost teeth.
 - C If required, the surgical intervention of periodontal disease performed in Phase II will identify teeth that can be saved through restorative therapy. In Phase III, restorative care takes place on those teeth deemed periodontally sound. Ideally, periodontal disease risk and contributing factors have been identified and eliminated or controlled and self-care has been established setting the stage for restorative therapy and finally for periodontal maintenance.
 - D Following stabilization of the periodontal condition and restoration of a functioning dentition, the patient will remain in Phase IV Maintenance Therapy for a lifetime to continuously monitor his periodontal health.
18.
 - A Peridex (chlorhexidine) has demonstrated antiplaque and antigingivitis properties and is especially useful for patients with periodontal disease. However, its 11.6% alcohol content contraindicate its use for this patient. More importantly, a fluoride supplement would better meet this patient's needs.
 - B,D Research on the active ingredient in Viadent, sanguinarine, and the active ingredient in Scope Original Mint, cetylpyridinium chloride, has been inconclusive on the ability of these agents to reduce plaque and gingivitis. However, this patient's needs indicate that a fluoride supplement would be a better recommendation. Additionally, the alcohol content of Viadent at 5.5% and of Scope Original Mint at 18.9% contraindicate use by this patient.

- C Essential oils, such as those found in Listerine mouth rinse products, have been shown to reduce plaque and gingivitis. However, the high alcohol content (26.9%) of Original Listerine contraindicate the use of this product for this patient. More importantly, a fluoride supplement would better meet this patient's needs.
- E** Caries prevention appears to be this patient's greatest need. Colgate Gel-Kam, a brush-on self-care stannous fluoride gel, would be the best recommendation because it has been shown to be effective in reducing gingivitis as well. Additionally, each of the other antiplaque and antigingivitis agents contain alcohol, which should not be recommended given this patient's history of excessive alcohol consumption.
19. A This patient has a moderate buildup of subgingival calculus. Tartar control toothpaste is effective at reducing the buildup of supragingival accumulation only. More importantly, controlling this patient's caries should be the primary concern.
- B** This patient's caries activity prompts the use of fluoride varnish.
- C All sites that are usual candidates for pit and fissure sealants appear to have restorations and/or exhibit caries activity.
- D At the reevaluation appointment, most deep pockets have responded to treatment. Those probing depths at the reevaluation appointment that remain at 5 to 6 mm are in the region of the third molars. These readings most likely indicate pseudopocketing that would not benefit from locally delivered antimicrobial therapy.
- E The burning tongue sensation and loss of papillae experienced by this patient is most likely due to a deficiency in folate. Antifungal agents would not be indicated treatment.
20. A,B The use of ultrasonic and sonic scalers may damage composite restorations and should be avoided.
- C** The rubber cup polishing method, when used with a polishing paste designed specifically for use on composite restorations, such as SDI Polishing Paste® is a reasonable choice to selectively polish to remove stains without scratching.
- D Toothbrush polishing is a safe alternate to other polishing methods. However, it is unlikely to remove stains, especially those caused by smoking. Tartar control toothpaste is no more effective at removing stains than other toothpastes currently available. The purpose of tartar control toothpaste is to reduce buildup of supragingival calculus by interfering with the attachment process.
- E Research has demonstrated that air abrasion polishing can be harmful to composite restorations and suggests caution when using this method. Because this patient's new anterior composite restorations are so large and cover a significant percentage of the tooth surface, it may be difficult to avoid prolonged exposure to the abrasive. The rubber cup method of polishing, with a polishing paste designed specifically for safe use on composite restorations, such as SDI Polishing Paste, would be the better choice in this case.
21. A Rampant, severe caries and xerostomia make the use of fluorides essential for this patient.
- B,C Tobacco use in conjunction with alcohol consumption dramatically increases this patient's risk of oral cancer. A tobacco cessation program should be discussed with this patient along with a discussion regarding the role alcohol plays in oral health.
- D** Tooth whitening products are not indicated when the patient presents with severe carious lesions. Also, the use of whitening products following restoration of his anterior teeth is not recommended. The whitening products will not change the shade of the composite dental materials with which this patient's anterior teeth were restored.

- E Following an explanation of the cause of his burning tongue sensation and the role alcohol plays in nutritional deficiencies, a nutritional counseling session is recommended.
22. **A** This patient currently exhibits alcohol withdrawal symptoms, which could escalate into confusion and distortion affecting his decision making regarding consent to dental treatment and his ability to undergo treatment. A physician's examination may indicate that this patient should be referred for medication, counseling, and/or psychiatric intervention during modification of his alcohol use to stabilize his condition.
- B,D,E Once a medical examination has been done and his physical condition is stabilized, referral should be made to address his nutritional status. Additionally, counseling in smoking cessation and recovery groups such as Alcoholics Anonymous can be recommended.
- C This patient's dental conditions are considered chronic and he is not in pain. Although his oral exam indicates that he is in need of extensive dental treatment, his lack of a diagnosis concerning his stomach problems and his unchecked excessive alcohol consumption make extensive, invasive dental treatment risky at this time.
23. A Safe treatment of this patient today requires knowing if he is still under the influence of alcohol.
- B,C,E Identification of excessive use of alcohol can better prepare the dental hygienist to plan safe treatment for this patient. Treatment planning should be based on accurate information regarding the patient's health behaviors.
- D** The health history should include questions that lead to more information regarding safe treatment of this patient and accurate recommendations and referrals for improved oral and general health. Knowing the type of alcohol this patient consumes does not add to this base knowledge.
24. A The dentist and the oral health care team is under obligation to inform the patient of all treatment options available and then allow the patient to make his own decisions based on knowledge provided regarding the advantages and disadvantages of each treatment. Once the patient-professional relationship has been established there is a responsibility to honestly disclose all available treatment options.
- B** There is often more than one treatment option for many dental situations. In this case, ideal treatment may indeed be crown restorations for these teeth. However, the choice to use composite restorations is adequate. The patient has a right to make a choice to sacrifice the best dental treatment for himself to use his financial resources on other nondental needs.
- C When the dental hygienist is in a position to assist with case presentation, a collaborative effort can be made to help provide the patient with many of the details he will need to decide on which course of treatment he will consent to. However, the decision to proceed with one treatment or another should be made by the patient.
- D Porcelain veneer crowns or full porcelain-fused-to-metal crowns would most likely provide improved stability for the anterior teeth affected by the rampant, severe caries. Although the composite restorative dental materials adequately restored these teeth, crowns may have provided an improved esthetic appearance.
- E There is no indication that this patient is incapable of understanding the need for comprehensive restoration of these badly decayed teeth.
25. A Because the patient is not currently inebriated and has decision-making capacity, he is able to give informed consent to be treated today.
- B Admitting to excessive drinking would impact treatment today if this patient was currently inebriated. Moreover, although this patient has admitted to heavy drinking, it is unclear at this point as to whether he views this as a problem.

- C Having liability insurance does not excuse a practitioner from providing negligent or substandard care. If this patient was determined to be inebriated at today's appointment, then treatment would be postponed to a time when he could make sound decisions and provide informed consent.
- D Because this is not an emergency procedure in which the patient cannot give informed consent, the dental hygienist is not using the right of therapeutic privilege.
- E** Because the patient has decision-making capacity, he is able to give informed consent. Decision-making capacity is a standard that varies with the level of risk to the patient. Because scaling and root debridement involve a low level of risk (compared to the higher level of risk of periodontal surgery), the patient's level of understanding and reasoning is adequate.

CHAPTER 14 CASE L THOMAS SMALL

1.
 - A A papilloma is a benign tumor often described as cauliflower-like in appearance and often found on the soft palate or tongue.
 - B Neurofibroma, a benign tumor of nerve tissue, is most often discovered as a nonulcerated mass on the lateral border or the tongue.
 - C** Because this finding is noted to be hard upon palpation, and no signs of pathosis are present on the radiographs, a bony exostosis is concluded.
 - D Chronic irritation of the oral mucosa can result in frictional hyperkeratosis, a thickened response of the tissue to this trauma.
 - E Lipoma, a benign tumor of mature fat cells, often appears as a yellowish mass of enlarged tissue in the vestibule or on the buccal mucosa.
2.
 - A,B A possible adverse effect of this patient's medications is dryness of the oral cavity. This dryness may be extended to the mucosa covering of the lips. Combined with mouth breathing, the habitually parted lips have become thickened and cracked.
 - C,E This patient has developed a habit of licking and sucking on his lips, which keeps them constantly bathed in saliva. Evaporating moisture adds to the drying effect of these tissues.
 - D** Although a person with a seizure disorder may accidentally bite the lips during convulsions, the dry, chapped appearance of this patient's lips does not indicate a traumatic injury.
3.
 - A Linear gingival erythema is a type of necrotizing ulcerative gingivitis observed in the HIV-positive patient that is characterized by an intense red color of the free gingival margin.
 - B** Gingival enlargement is a side effect of many anticonvulsant drugs such as phenytoin. This enlargement makes plaque biofilm control difficult, resulting in gingival inflammation that may contribute to further enlargement.
 - C Gingival enlargement sometimes occurs in patients not taking anticonvulsant drugs as an inherited condition. However, the gingival enlargement observed in this patient is most likely influenced by the anticonvulsant drugs he is taking to manage his seizure disorder.
 - D Necrotizing ulcerative gingivitis is characterized by a grayish pseudomembrane overlaying the free gingival margin, and necrotic, or punched-out, papillae. Pain is associated with this infection, not expressed by this patient.
 - E A primary infection of the herpes virus often manifests as acute herpetic gingivostomatitis, characterized by oral vesicles and ulcers and intense pain, not expressed by this patient.

4.

A Food and debris can easily become trapped under the opercula covering the partially erupted mandibular third molars, precipitating pericoronitis.

B Osteomyelitis develops acutely or chronically and involves an inflammation of the bone following trauma or surgery or as an extension of another infection, such as a periapical abscess. There is nothing in this patient's medical or dental history or clinical exam that indicates risk of osteomyelitis.

C Melanosis is the normal physiologic pigmentation of the oral mucosa often associated with dark-skinned individuals, although not evident here.

D If a salivary gland becomes damaged, the mucous salivary secretions may enter the surrounding tissues, creating a swelling called a mucocele. The most common site of occurrence is the lower lip.

E Taurodontism refers to a developmental anomaly where the tooth exhibits an elongated (bull-like) pulp chamber. This anomaly is not considered a risk to oral health and the impacted, partially erupted mandibular third molars do not appear to present with this anomaly.
5.

A The normal appearance of the mandibular canal should not be mistaken for a bone fracture.

B Nutrient canals appear as thin radiolucent lines, usually running in a vertical position when observed in a radiograph of the mandible.

C,D The oblique ridge and mylohyoid line should not be confused with the appearance of the mandibular canal. If observed in this region, the oblique ridge and mylohyoid line would most likely appear slightly more distinct with an increased radiopacity. Additionally, the radiolucency outlined by the paired faint radiopaque lines observed in this radiograph is the characteristic appearance of the mandibular canal.

E The paired parallel radiopaque lines outlining this radiolucency indicate the presence of the mandibular canal, which appears to traverse the body of the mandible.
6.

A Although it may be difficult to identify foreign objects stuck to the film emulsion from this photograph, the characteristic lightning-patterned radiolucency that results from exposure to static electricity should not be confused with other conditions that affect the quality of the radiograph.

B Static electricity created a white light spark that resulted in an exposure of the film with a lightning-patterned line of radiolucency.

C Roller marks that result when automatic processor rollers are contaminated, or when a film gets stuck between the rollers for a period of time, appear as a thick horizontal or vertical band of uniform radiolucency corresponding to where the roller contacted the film.

D Depending on the chemical, either developer or fixer, an accidental chemical splash will appear radiolucent or radiopaque, respectively. The thin artifact observed here is characteristic of exposure to static electricity and should not be confused with an accidental chemical splash.

E Scratching the emulsion results in white marks on film representing where the emulsion is missing.
7.

A The image of teeth, including the enamel, dentin, and pulp chambers, can be identified in these radiographs and should not be confused with the presence of tori.

B Dens invaginatus often affects the maxillary lateral incisors bilaterally. When present, dens invaginatus appears as an invagination of tooth structure within the pulp chamber.

C An enamel pearl, when present, will appear as a smooth, round extension of enamel within the furcation area of a multirooted tooth.

- D** The radiographs reveal supernumerary teeth (fourth molars).
 E As observed on the radiographs, this patient's maxillary third molars are erupted. The impacted teeth imaged here are supernumerary.
8. A Although this patient's medications have controlled his seizure episodes for the past 8 months, treatment armamentarium should include devices that will help manage and respond to the possible incidence of a generalized tonic-clonic convulsion.
 B To help minimize the risk of a seizure episode during dental hygiene treatment, appointments should be made within a few hours of taking the medications designed to control them.
 C The patient should be questioned about any known precipitating factors regarding his seizures and he should be instructed to report these sensations if they manifest during the appointment.
 D Should a seizure occur, the patient should be monitored for respiratory difficulty as it may be necessary to administer oxygen.
E Based on this patient's medical conditions, preparations should be made for a possible seizure. Administration of a bronchodilator would be appropriate for an asthmatic attack.
9. **A** During a seizure, the patient's movements become spastic and generalized muscle rigidity will cause uncontrolled forceful movements of his limbs and head. The primary task of management during this stage must be to protect the patient from injury. The treatment chair should be positioned in a supine, protected position, and the instrument tray and other equipment moved out of the way. However, no attempt should be made to move this patient out of the treatment chair and onto the floor.
 B,C,D,E These answers are incorrect, as explained previously.
10. A,E Vital signs and airway should be monitored to avoid escalation of the emergency.
B Given this patient's medical history, uncontrolled muscle motor movements will mostly likely indicate the onset of an epileptic seizure. The patient should not be forcibly restrained. Passive restraint may be applied only if the patient is in danger of contacting objects in the area that may cause injury, or if the patient is in danger of falling out of the treatment chair.
 C Placing the patient in a supine position in the treatment chair can help provide support throughout the seizure.
 D Equipment should be removed from the area to prevent injury to the patient during uncontrolled forcible movements.
11. A Coronal polishing with a power-driven handpiece may create noise that could have the potential to exacerbate a seizure. However, the louder and higher pitched noise output of the ultrasonic scaler listed here should be considered more of a risk.
 B Local delivery of subgingival irrigants with a pulsating syringe is not likely to create the loud noise associated with precipitating this patient's seizures. The louder and higher pitched noise output of the ultrasonic scaler listed here should be considered more of a risk. Irrigation using a handheld syringe is not likely to produce loud noises that are suspected of exacerbating this patient's seizures.
C Because this patient's epileptic seizures are exacerbated by monotonous and loud noises, it may be prudent to forego the use of an ultrasonic scaler.
 D,E Root planing with handheld instruments and toothbrush deplaquing are not likely to create the loud noise associated with precipitating this patient's seizures.

12.
 - A,E The use of disclosing solution and demonstration of oral hygiene instructions using the patient's own mouth is a sound strategy for explaining self-care techniques. Using a handheld mirror or projecting the images on a computer monitor assists in the demonstration of appropriate techniques. However, the first step in gaining patient interest would be to address his primary complaint—the lack of a toothbrush at home.
 - B Giving this patient a brochure that he can take home can help remind him of the need for self-care. However, the first step in gaining patient interest would be to address his primary complaint—the lack of a toothbrush at home.
 - C** This patient's chief concern is that he does not have a toothbrush. His concern indicates that he knows taking care of his oral health is important. His probable response to oral hygiene instructions will be that he has not been able to perform adequate self-care because his toothbrush is missing. The best approach to home care instruction is to provide him with a new toothbrush. Providing a toothbrush with his name on it will further motivate this patient by addressing his chief concern first.
 - D When the opportunity presents, including a patient's caregiver in oral hygiene instructional services for the patient with an intellectual disability can lead to increased effectiveness and improved outcomes. However, it is highly unlikely that the social services case worker lives at the care facility with this patient. Additionally, the first step in gaining this patient's interest in improving oral self-care would be to address his primary complaint—the lack of a toothbrush at home.
13.
 - A There is nothing in this patient's medical history that would indicate a need for antibiotic prophylaxis.
 - B** The possible side effects of the multiple anticonvulsant drugs this patient is taking include increased incidence of postsurgical gingival bleeding and delayed healing time. Given the severity of the gingival inflammation and the spontaneous gingival bleeding that this patient presents with, a pretreatment bleeding time would be prudent before subgingival instrumentation.
 - C There is nothing in this patient's medical history that would necessitate the administration of an analgesic drug. Additionally, it is possible that phenytoin (Dilantin) will increase the likelihood of acetaminophen hepatotoxicity, and therefore concurrent use of these drugs should be avoided.
 - D Using an alcohol-containing mouth rinse should be avoided in the patient with evidence of dry mouth.
 - E Given the severity of the gingival inflammation and the spontaneous gingival bleeding that this patient presents with, a pretreatment bleeding time would be prudent not only before subgingival instrumentation but also before subgingival irrigation.
14.
 - A A score of 0 indicates that the tooth is plaque free.
 - B A score of 1 indicates slight plaque biofilm, detectable by swiping a hand instrument across the tooth.
 - C A score of 2 indicates biofilm accumulation is observable visibly as a thin film.
 - D** The Plaque Index of Silness and Loe measures the amount of plaque biofilm at the gingival margin. A score of 3 indicates heavy accumulation.
15.
 - A The initial colonization of bacteria on the teeth surfaces consists of 75% to 80% gram-positive cocci. The plaque observed in this region is thick and has accumulated a high concentration of bacteria capable of producing gingival inflammation.
 - B Increasing numbers of gram-positive filamentous forms and short rods indicate that the plaque has gone undisturbed for about 1 to 2 days. The thickened, matured plaque observed in these regions has been undisturbed for over a week, and is producing gingival inflammation.

- C Plaque that remains undisturbed for 4 to 7 days develops an increasing number of rods, filamentous forms, and fusobacteria. Although the biofilm observed in these regions is thick at the gingival margin, the severity of gingival inflammation indicates the presence of vibrios and spirochetes.
 - D Gram-negative and anaerobic organisms begin to colonize plaque that remains undisturbed for 1 to 2 weeks. However, the severity of gingival inflammation in these regions indicates an older biofilm of vibrios and spirochetes, along with cocci and filamentous forms of bacteria, which have become densely packed causing the severe gingivitis.
 - E** The significant gingival inflammation observed indicates the presence of mature plaque biofilm containing gram-negative motile rods and spirochetes.
16. A,B,C,E Subgingival irrigation, polishing, toothbrushing, or applying fluoride will not remove this calculus deposit.
- D** The photographs reveal a partially supragingival calculus deposit. This deposit must be removed with the use of a universal curet.
17. **A** A sickle or curved sickle is ideal for removing supragingival calculus from this region.
- B A file scaler is used when the calculus deposits are large or burnished and cannot be readily removed with the curved or straight sickle scaler. The file scaler can be used to crush gross deposits for easier removal by other instruments.
 - C The hoe scaler is used to break up gross deposits for easier removal by other instruments. However, the wide straight cutting edge of the hoe scaler makes its effective and safe use in this region difficult.
 - D The purpose of the chisel scaler is to remove large deposits from proximal surfaces of anterior teeth that are accessible as a result of missing interdental gingiva.
18. **A** Anticonvulsants taken by this patient are partly responsible for his gingival enlargement. Although meticulous home care will likely reduce the gingival inflammation caused by the accumulation of bacterial plaque at the gingival margin, the fibrotic enlargement caused by the anticonvulsants will probably remain. Additionally, research has shown that initial probing depths of 1 to 3 mm are not likely to demonstrate a reduction in probe readings at the reevaluation appointment and that probing depths of 4 to 6 mm will most likely demonstrate only a 1-mm reduction in probe readings at the reevaluation appointment.
- B Research has indicated that deep pocket depths of 7 mm or greater usually show the greatest reduction, 1.5 mm to 3 mm, at the reevaluation appointment.
 - C A reduction in pocket depths of 4 to 5 mm is unrealistic given this patient's initial 2- to 6-mm measurements.
 - D Reduction in probing depths is an expected outcome of nonsurgical periodontal therapy. Even if the patient's home care does not improve significantly, instrumentation will have disrupted the bacterial flora of the pockets. New biofilm accumulations at the reevaluation appointment will consist mainly of gram-positive bacteria that is more like those microbes found in healthy sites.
19. **A** To gain maximum benefits from a fluoride mouth rinse, proper swishing mechanics must be followed. Using the correct swishing methods and holding the solution in the mouth for the required length of time may be too demanding for this patient, and may lead to decreased compliance. Additionally, the risk of accidental swallowing would need to be assessed.
- B The custom tray application procedure may be too demanding for this patient, and may lead to decreased compliance.

- C** Using a fluoride application that utilizes brushing, a skill this patient can be encouraged to improve, can help with patient compliance. Additionally, although stannous fluoride does not have the American Dental Association Seal of Acceptance for reducing plaque and gingivitis, it is often used in periodontal therapy as an antiplaque and antigingivitis agent, a use that may benefit this patient.
 - D This patient, like all patients whether at risk for caries or not, should be encouraged to use a fluoride dentifrice. Because patients at risk for caries will benefit from more than one method of fluoride use, recommending the use of a stannous fluoride gel is the best choice from this list.
 - E Dietary fluoride supplements are usually prescribed for children aged 6 months to 16 years whose water supply is not fluoridated at an optimal level. Although most fluoride supplements are chewed and swished for a topical effect, they are also swallowed for a systemic influence on the developing dentition.
- 20.
 - A This patient presents with risk factors for caries, including clinically visible caries, poor self-care, and a tendency toward xerostomia, making him a candidate for fluoride. A varnish application that requires less need for isolating the teeth and drying would be an ideal method of delivery.
 - B** Removing diseased tissue from the lining of periodontal pockets during scaling and root debridement exposes the pocket wall to possible invasion of polishing paste particles. During polishing, particles can become lodged in the tissue and may delay healing. Additionally, polishing should be postponed when the gingival tissues are spongy and bleed easily.
 - C,D,E Provided there are not complications with this patient's medical history and no contraindications to treatment are noted, probing, scaling, and root planing should begin as soon as possible.
- 21.
 - A** Most seizures last between 1 and 2 minutes. When uncontrolled movements end, the muscles relax and the patient falls into a deep sleep, and usually requires several hours of rest. However, status epilepticus results in reoccurring seizures or a seizure that becomes prolonged. Seizures lasting longer than 5 minutes should be suspected of developing into life-threatening status epilepticus and emergency medical assistance should be summoned.
 - B,C,D,E Because seizures usually last 1 to 2 minutes, a seizure lasting longer than 5 minutes should be suspected of developing into life-threatening status epilepticus and emergency medical assistance should be summoned.
- 22.
 - A,B,C Learning as much as possible about the type of seizure, frequency, and degree of control will assist the dental professional with the decision to provide treatment and with managing a medical emergency.
 - D Knowing precipitating factors will allow the dental professional to adequately prepare for a medical emergency.
 - E** Assessing this patient's mental status is not a prerequisite for treatment. However, knowing about any warnings or pre seizure changes in the patient's emotions would be helpful information. Emotionally, some patients may demonstrate an increased sense of irritability right before an impending seizure.
- 23.
 - A** This patient communicates well and appears capable of understanding the need for his own oral self-care. Additionally, he is able to perform simple skilled work to maintain his job at the grocery store.
 - B Adults with moderate retardation are less able to perform self-care without assistance, and are more likely to be able to perform unskilled work only with direct supervision.
 - C Adults with severe retardation are less likely to be employable and although they can adapt to daily routines, they need supervised self-care.

- D Individuals who are profoundly retarded require close supervision and daily assistance with self-care.
24. A Dental hygiene treatment of this patient will require his cooperation. All aspects of treatment, and hence, the informed consent, must be explained to the patient, and he should be given the opportunity to ask questions, and agree or disagree with procedures. However, his mother is his legal guardian and therefore, her signature must be obtained on the informed consent form.
- B Although this patient's case worker has brought him to the appointment today, it is not likely that she has legal authority to consent to his treatment. Her agreement with his legal guardian, his mother, is most likely limited and would not be likely to give her permission to consent to dental treatment. Because his mother is known to be his legal guardian, her consent must be obtained.
- C** This patient's mother is his legal guardian. Permission to treat him must be secured from his mother.
- D This patient's mother has most likely made an agreement with the group home director to allow the case worker to transport him to his appointment today. However, as his legal guardian, his mother is responsible for signing the informed consent form.
- E Although the dental hygienist works with the dentist in providing treatment recommendations and developing a dental hygienist diagnosis, the dentist cannot allow treatment of this patient without the patient's legal guardian, his mother, providing informed consent.
25. A A patient who is legally competent is an individual who has not been through a legal process to be declared incompetent and/or who has not legally granted authority to another for the purpose of decision making. A person may have varying degrees of decision-making capacity and not all legally competent individuals have decision-making capacity. However, this patient's mild mental retardation limits his decision-making ability.
- B A patient may have impaired decision-making capacity, although maintaining a legally competent status. However, this patient and his mother have been through a legal process granting her legal guardianship.
- C A patient who has been through a legal process to be declared incompetent may still have decision-making capacity. For example, a person entering a life-threatening medical operation may take legal action to grant another authority to carry out his wishes should the patient become incapacitated.
- D** This patient's mother is his legal guardian and as such, has the responsibility for making competent decisions regarding his treatment. Given his intellectual disability, this patient is considered to have impaired decision-making capacity.



PART VI MEDICALLY COMPROMISED PATIENTS

CHAPTER 15 CASE M NANCY FOSTER

1. **A** Although it may occur at any age, type 1 diabetes usually has a sudden onset during puberty, where insulin-producing beta cells in the pancreas are destroyed. This patient is dependent on exogenous insulin for survival as a result of this complete lack of insulin production, evidenced by her use of a continuous subcutaneous infusion pump.

- B Patients with type 2 diabetes exhibit an insulin resistance rather than a lack of insulin-producing beta cells in the pancreas. The disease onset usually occurs over a long period of time in individuals with a genetic propensity for the disease and/or as a result of a sedentary lifestyle and high-fat diet that leads to obesity. Although some individuals with type 2 diabetes are treated with exogenous insulin, many others can manage their disease through lifestyle changes such as diet and exercise or with oral hypoglycemic medications.
 - C Gestational diabetes refers to an alteration in glucose tolerance observed during pregnancy.
 - D Other specific types of diabetes not linked to type 1, type 2, or gestational diabetes include drug- or chemical-induced diabetes, genetic defects of beta cell function, and pancreatic diseases, none of which is evident in this patient's health history.
2. A,B Insulin resistance and inadequate insulin secretion is typical of type 2 diabetes. Many type 2 diabetics manage their disease through lifestyle changes such as diet and exercise or with oral hypoglycemic medications.
- C** When insulin-producing beta cells in the pancreas are destroyed, the patient must depend on exogenous insulin for survival. This patient's use of a continuous subcutaneous insulin infusion pump indicates that her pancreas no longer contains insulin-producing beta cells.
 - D Obesity is a major risk for diabetes across all age groups. However, this patient's height and weight indicate a BMI (body mass index) of 18.8 that falls within the normal weight BMI range of 18.5 to 24.9.
 - E Although the risk factors for diabetes may include a high-fat diet and being overweight, sucrose consumption is not a direct cause of diabetes.
3. A A numerical score of 0 indicates no evidence of fluorosis.
- B** The anterior teeth present with a parchment-white color confined to the incisal edges. Additionally, the parchment-white color presents in the posterior teeth as "snowcapping" where the fluorosis is confined to the cusp tips, indicating a numerical score of 1.
 - C A numerical score of 2 indicates fluorosis that presents as a parchment-white color covering at least one-third of the tooth surface but less than two-thirds.
 - D A numerical score of 3 indicates fluorosis that presents as a parchment-white color covering at least two-thirds of the tooth surface.
 - E A numerical score of 4 indicates fluorosis that has begun to show evidence of brown staining of any of the preceding levels.
4. A Changes in salivary flow are not directly affected by periodontal disease. Diabetes does pose a significant risk for periodontal disease, and periodontal disease has been linked with altering blood glucose levels that make control of the disease difficult.
- B Although many medications have adverse effects on salivary flow that results in xerostomia, insulin is not one of these.
 - C** Excessive fluid loss through an increased volume of urine produced by the diabetic patient can be expected to reduce secretion of saliva and result in xerostomia.
 - D Depending on the type of food ingested, salivary flow can actually be stimulated to increase with mastication.
 - E This patient's self-care, although not the cause of xerostomia, can play an important role in maintaining oral health in the presence of reduced salivary flow.
5. A The risk of dental caries increases as a result of increased glucose in parotid saliva during uncontrolled periods.
- B During periods of hyperglycemia body fat is metabolized resulting in weight loss.

- C,E Hyperglycemia increases pulse rate and lowers blood pressure.
- D** Congenitally missing teeth is unrelated to poor glycemic control. The most likely reason that this patient is missing her first premolars and third molars is because of orthodontic intervention.
6. A,B Patients with uncontrolled diabetes often have a reduced level of polymorphonuclear leukocytes, the first line of defense in an immunoinflammatory process, increasing the risk of gingivitis and periodontal disease for diabetic patients.
- C Decreased salivary flow in the diabetic patient often leads to xerostomia that has a high risk of being accompanied by burning mouth syndrome.
- D Decreased salivary flow often leaves the diabetic patient susceptible to opportunistic bacterial and fungal infections.
- E** Dentinal hypersensitivity is not a possible risk factor for the patient with diabetes. Additionally, nothing in this patient's assessment indicates her developing dentinal hypersensitivity. Each of the other oral manifestations listed here are potential risks for the diabetic patient during uncontrolled glycemic periods.
7. **A** An embossed film identification dot is found in one corner of an intraoral radiographic film. This raised bump is used to determine the film's orientation when viewing the radiographic image after processing. During film packet placement intraorally, the embossed dot is positioned at the incisal or occlusal edge of the teeth being imaged. This placement helps place the inevitable distortion of the radiographic image caused by the bump in the film in an area so as not to interfere with important radiograph interpretation, especially near the tooth apex.
- B,C,D,E The unique round appearance of the film identification dot should not be confused with a composite restoration, attrition, calculus, or caries. The typical location of the film identification dot in this corner would further indicate that this finding is not a composite restoration, attrition, calculus, or caries.
8. A Overlapped interproximal spaces would appear as an increased radiopacity between the teeth as a result of the superimposition of the images of adjacent teeth.
- B** A diagnostic-quality periapical radiograph should image the entire tooth from incisal or occlusal edge to the apex and include approximately 2 to 4 mm of supporting bone beyond the apex.
- C Conecutting error occurs when the image receptor is not centered within the beam of radiation. Conecutting error presents as a clear or radiopaque area representing no exposure.
- D Herringbone is the name given to the visual pattern of the lead foil imaged onto the film where the film packet is placed in the oral cavity backward and exposed through the lead foil. Although still a relevant term, films available today contain various patterns, such as a tire track pattern.
- E There is a possibility that an image receptor holding device may be recorded onto the resultant radiograph. The radiopacity of this image depends on the material (metal or plastic) of the holder. However, the radiopacity of the holder used imaged on this radiograph does not interfere with diagnostic quality and is not considered an error.
9. A Decreasing the vertical angulation would result in a further loss of image in the region of the teeth apices. If the patient could not tolerate biting further down on the bite block of the image receptor holding device, increasing the vertical angulation could be used to image more of the apical region.
- B Shifting the horizontal angulation to the mesial or to the distal would be the corrective action for overlapping error.

- C** The most likely reason that the apices were not imaged was that the patient was not fully occluded on the bite block of the image receptor holder. The location of the image of the metal section of the image receptor holder on the radiograph further indicates that the occlusal edges of the teeth were not closed as far as possible on the bite block causing the loss of the image of the teeth apices.
- D Reversing the film packet when placing into the oral cavity is the corrective action for a backward film placement. There is no evidence, underexposure with an image of the pattern of the lead foil, to indicate that this film was placed into the oral cavity backward.
- E Centering the image receptor within the x-ray beam is the corrective action for cone cut error. The radiopaque area at the edge of this radiograph represents the metal portion of the image receptor holding device and should not be confused with cone cut error.
10. A The nasal septum is the bony wall separating the paired radiolucent ovals of the nasal cavity. The nasal septum appears radiopaque.
- B Although nutrient canals will appear radiolucent when imaged on a radiograph of the maxilla, they are most often visible as faint lines within the walls of the maxillary sinus. The normal appearance of the midpalatine suture in this region of the palate should not be mistaken for a nutrient canal.
- C,D The appearance of the midpalatine suture in this region is typical and should not be mistaken for bone loss or a palatal fracture.
- E** The midpalatine suture is an opening in the bone that allows more x-rays to pass through to the image receptor, increasing radiolucency. The appearance of the midpalatine suture in this region is typical and should be identified as normal radiographic anatomy.
11. **A** The radiographs reveal a distal radiolucency indicating a Class II classification. Class II caries are cavities in the proximal surfaces of posterior teeth. Early Class II caries are most often detected on radiographs.
- B Class III caries are cavities in the proximal surface of incisors or canines.
- C Class IV caries are cavities in the proximal surface of the incisors or canines that also involves the incisal angle.
- D Class V caries are cavities in the smooth surface of the cervical third of the facial or lingual surfaces of the teeth.
- E Class VI caries are cavities in the incisal edges of anterior teeth or in the cusp tips of posterior teeth.
12. A A microdont is a tooth that appears smaller than normal. The maxillary lateral incisors and the maxillary and mandibular third molars are the teeth most commonly affected.
- B The most common occurrence of a supernumerary tooth is the mesiodens, an extra tooth that erupts between the maxillary central incisors.
- C Secondary dentin occurs in response to trauma or as a natural aging process. Secondary dentin cannot be distinguished radiographically from primary dentin. The addition of secondary dentin, deposited within the pulp chamber, appears as a reduction in the size of the pulp chamber.
- D** The smooth, round appearance of the radiopacity observed in the furcation area of this molar tooth is characteristic of an enamel pearl.
- E Pulp stones would appear as calcifications within the pulp chamber.
13. **A** The maxillary right second premolar presents with an abnormal bend in what is normally a straight tooth root.
- B,C,D,E These teeth all present with normal appearing tooth root structures.

14. A,C,D Hyperglycemia, where there is an accumulation of ketone bodies in the blood (ketoacidosis), results in diabetic coma. Hyperglycemia refers to a very high level of glucose in the blood. This occurrence is unlikely in this patient who uses an insulin pump to deliver regular insulin doses. Additionally, the onset of hyperglycemia builds slowly over a period of time, most likely causing the patient to feel too ill to keep the dental hygiene appointment. For this reason, diabetic coma is less likely to occur during treatment.
- B** The most likely emergency situation regarding this patient would result from hypoglycemia or insulin shock. Hypoglycemia occurs when the patient has received a dose of insulin but failed to eat a meal. The onset is usually acute. This patient is receiving regular insulin through the use of an insulin pump. She must balance this with regular meals, which she has admitted to having trouble managing.
15. A,B,D,E Each of these is a symptom of hypoglycemia.
- C** Numbness or a tingling of the extremities referred to as paresthesia is not a symptom of hypoglycemia.
16. A Oral antibiotic prophylaxis is sometimes suggested for the uncontrolled diabetic with significant chronic oral infections who requires extensive treatment. This patient's oral conditions and the instrumentation expected do not warrant premedication.
- B Having an ammonia capsule ready for use would be more likely to benefit management of the patient with syncope.
- C The insulin pump is not expected to interfere with treatment. More importantly, the insulin pump provides this patient with a continuous, precisely measured base dose of insulin, and can be programmed to deliver a bolus dose prior to meals. It should not be disconnected.
- D Patients with diabetes may be treated in the same manner as nondiabetic patients. A semisupine chair position is not required for management of this patient.
- E** The most likely emergency would result from hypoglycemia, or insulin shock, as a result of excess insulin or low glucose. When symptoms of hypoglycemia present, while the patient is conscious, she can be given a glucose tablet, or another source of oral glucose such as orange juice or cake frosting to reverse the hypoglycemic condition. When unsure if the patient's symptoms indicate hypo- or hyperglycemia, administering a source of oral glucose is still the recommendation. If the condition is hyperglycemia, glucose will not reverse the condition, but neither will it harm the patient.
17. A Increased glucose levels often found within the gingival crevicular fluid of diabetics allows bacteria to thrive. Therefore, one must consider this patient's diabetes to have the potential to affect tissue response to plaque microorganisms.
- B Nonplaque-induced gingival disease results from viral or fungal infections, allergic reactions or dermatologic diseases, or mechanical trauma. Given this patient's medical history, one can assume that her gingival disease will be affected by diabetes.
- C The insulin taken by this patient does not play a role in classification of her gingival condition as other drugs, such as those taken to manage seizure disorders.
- D** Although plaque has initiated the gingivitis, this patient's diabetes can be expected to play a role in modifying the disease.
- E Gingival lesions such as those related to lichen planus and lupus would be considered nonplaque-induced gingival manifestations of systemic conditions.
18. A The body's inflammatory response to invasion of bacterial plaque is responsible for producing redness and edema, along with varying degrees of heat, pain, and reduced function. The red and edematous gingiva observed in this region is the result of an increased blood flow as the inflammatory process reacts to the invasion of bacterial plaque.

- B,D The body's inflammatory response to invasion of bacterial plaque is responsible for producing redness and edema, along with varying degrees of heat, pain, and reduced function. The role of phagocytes, usually leukocytes, in the inflammation process is to ingest and digest invading bacteria. While performing this function, phagocytes in turn may create more inflammation as they die and spill their contents into neighboring regions.
- C** Prostaglandins play a role in activating alveolar bone destruction in periodontitis by stimulating osteoclasts, cells responsible for bone destruction. Based on this patient's assessment data, her periodontal status is gingivitis without bone loss.
- E The body's inflammatory response to invasion of bacterial plaque is responsible for producing redness and edema, along with varying degrees of heat, pain, and reduced function. Plasma proteins and leukocytes leak from the blood vessels into the surrounding tissue resulting in redness and edema, leading to the production of heat, pain, and reduced function.
19. A A change in body weight is not expected to affect the healing of the gingiva.
- B The etiology of the gingival inflammation observed at the initial appointment was plaque-induced and not from trauma of a nail biting habit. Therefore, cessation of her nail biting habit is not expected to have an effect on gingival healing.
- C Maintaining ideal glucose levels will help prevent an increase in risk for periodontal disease. However, changing between self-injections and the continuous subcutaneous infusion pump method of insulin delivery is not expected to affect the healing of the gingiva.
- D The use of whitening products will not improve gingival health.
- E** The goal of periodontal debridement and improved self-care has produced the desired outcome of improved health of this tissue.
20. 1. **C** During the initial inflammatory response phagocytes engulf and remove bacteria and debris.
2. **E** Granulation tissue fills in the wound and a new network of blood vessels are formed to supply nutrients to the healing tissues.
3. **B** Fibroblasts secrete the precursors of all the components of the extracellular matrix (ECM) including connective tissue.
4. **D** Degradation of the components of the ECM stimulate tissue remodeling.
5. **A** Acting in a similar manner as smooth muscle cells, myofibroblasts establish a grip on the wound tissue edges and contract inward.
21. A It is very likely that this patient will be able to improve self-care. Given the gingival assessment at the 6-week reevaluation appointment, a 3-month recall should be recommended.
- B** Recent studies have indicated that even in well-controlled diabetics, gingivitis has a tendency to develop more frequently than in nondiabetic patients. Given this patient's gingival assessment in response to the slight generalized plaque detected, she should be encouraged to keep 3-month recall appointments.
- C Because gingivitis has a tendency to develop more frequently in the diabetic patient, especially when glycemic control fluctuates, and given this patient's gingival assessment at the initial appointment, a 3-month recall should be established.
- D,E Nine- and 12-month recall intervals would not benefit this patient.
22. **A** The maxillary right second molar presents with deep fissures and pits that would most likely benefit from the placement of a sealant.
- B,D,E The maxillary right first molar and the mandibular left and right first molars all have amalgam restorations on the occlusal surfaces.
- C The dental chart and radiographs reveal caries on the maxillary left first molar that contraindicates placement of a sealant.

23. A This patient's dentition does not present with conditions that would prompt recommending an end-tuft brush.
- B Although a tooth whitening product may indirectly assist in better home care, by motivating the patient to follow meticulous self-care, the use of self-applied fluoride will provide a more important benefit for this patient.
- C Using a power flosser may contribute to increasing compliance with effective self-care practices. However, this patient's caries risk indicates that a self-applied fluoride would be the most important preventive measure from this list.
- D** Her decision to stop using a fluoridated toothpaste should be addressed. Misconceptions regarding systemic fluoride and her current oral conditions should be discussed. Xerostomia and elevated levels of glucose in saliva put this patient at risk for caries, for which a self-applied fluoride would be beneficial.
- E Although products can be introduced to help this patient improve self-care, the use of self-applied fluoride will provide a more important benefit for her.
24. A Although the presence of gingival inflammation observed at this patient's initial appointment would contraindicate the use of a whitening product at that time, inflammation does not affect whitening results.
- B Nail biting will not affect the outcome of tooth whitening.
- C** Fluorosis does not respond well to whitening procedures.
- D Although diabetes may affect how this patient responds to healing, this medical condition will not affect the outcome of tooth whitening.
- E The placement of posterior occlusal sealants will not be an esthetic consideration when considering the use of whitening agents.
25. A,B To prevent a medical emergency from arising during treatment, a patient receiving insulin to manage diabetes should be questioned regarding maintenance of regularly scheduled doses and possible insulin reactions that might occur today.
- C,D To prevent a medical emergency from arising during treatment, a patient receiving insulin to manage diabetes should be asked questions to determine the blood glucose level at the time of treatment and to ensure that the patient has eaten regular meals before the appointment and encouraged to eat following the appointment.
- E** Although unexplained weight loss or gain can play a role in helping identify patients who have not yet been diagnosed with diabetes, this patient's current weight will not impact safe dental hygiene treatment at today's appointment.

CHAPTER 16 CASE N BRIAN BARTLETT

1. A,B,C These answers are incorrect, as explained next.
- D** Insulin resistance in the presence of normal, decreased, or increased insulin production is typical of patients with type 2 diabetes.
2. A For an adult, systolic readings less than 120 mm Hg and diastolic readings less than 80 mm Hg are considered within normal limits.
- B For an adult, systolic readings between 120 and 139 mm Hg and diastolic readings between 80 and 89 mm Hg are considered prehypertensive.
- C** For an adult, systolic readings between 140 and 159 mm Hg and diastolic readings between 90 and 99 mm Hg are classified as stage 1 hypertension.
- D For an adult, systolic readings greater than 160 mm Hg and diastolic readings greater than 100 mm Hg are classified as stage 2 hypertension.

3. A,B,C,E The BMI (body mass index) is used to determine whether an individual is at a healthy or unhealthy body weight. The formula used to determine adult BMI is based on an individual's weight and height. This allows for a more precise estimation of unhealthy body fat. Body fat has been linked to an increased risk for developing diabetes, hypertension, and high cholesterol or dyslipidemia leading to coronary artery disease.
 - D** A decreased pain threshold is not known to be directly related to obesity or conditions of being overweight.
4. **A** Dry mouth and/or taste disturbance are not adverse oral effects of the antidiabetic medication Avandamet.
 - B,C Dry mouth is an adverse oral effect of most antihypertensives and diuretics, including Avapro and Zaroxolyn.
 - D Taste disturbance is an adverse oral effect of Zocor.
5. A Enlarged gingiva would most likely result in a free gingival margin position located coronally, increasing toward the incisal edges of these teeth.
 - B** The gingival margin in this region has migrated apically to reveal the root surfaces of these teeth. Recession refers to this apical migration of the gingiva.
 - C Cratering often refers to papillae that no longer fill in the spaces between the teeth.
 - D Clefting refers to a more localized condition of recession, in which a wedge-shaped slit forms.
 - E Hyperplastic refers to an increase in cells that results in a thickening of the tissues.
6. A The composite restoration present on the occlusal surface of the maxillary right second molar should not be mistaken for a temporary restoration.
 - B** The photographs and radiographs indicate the presence of a temporary restoration on the distal occlusal surfaces of the maxillary right first premolar.
 - C The radiographs reveal the probable presence of caries on the mesial surface of the maxillary right canine that should not be mistaken for a temporary restoration.
 - D The radiographs reveal the probable presence of recurrent decay around the restoration on the mesial surface of the maxillary left lateral incisor that should not be mistaken for a temporary restoration.
 - E The composite restoration present on the distal surface of the maxillary left canine should not be mistaken for a temporary restoration.
7. A Gingival abrasion due to incorrect toothbrushing technique can result in gingival recession.
 - B An abnormal frenal attachment position contributes to gingival recession.
 - C** Gingival recession is not an adverse effect of this patient's medications.
 - D Teeth that are rotated, tilted, or otherwise malaligned in the arch can contribute to the etiology of gingival recession.
 - E Plaque-related gingivitis is a common etiology for gingival recession.
8. A Exposed cemental root surfaces are more likely to be difficult for the patient to clean and are therefore more likely to accumulate biofilm.
 - B,C Exposing the root surfaces increases the risk for cemental wear, thus increasing the risk of sensitivity for these teeth.
 - D Recession that exposes the root surfaces to the conditions in the oral cavity is likely to increase the risk of root decay for these teeth.
 - E** Nothing in this patient's assessment would put these teeth at an increased risk for trauma.

9. **A** The crowding of the premolars in this region of the arch will result in overlapped images on the radiograph, representing the superimposition of the adjacent teeth.
- B Although incorrect horizontal angulation does result in overlapped images, the cause of the overlapping in this radiograph is the malaligned teeth.
- C Excessive vertical angulation would have resulted in an unequal distribution of the arches on the bitewing radiograph where more of the maxilla and less of the mandible would be recorded.
- D Conecut error would have resulted if there was inadequate coverage of the image receptor with x-ray beam.
- E Not placing the image receptor parallel to the tangent of adjacent teeth can result in overlapping of the images. This may occur if the image receptor holder is not retained in proper position by the patient. However, the overlapping present in this bitewing radiograph is the result of the anatomic location of the teeth in this region and not from incorrect image receptor retention by the patient.
10. A Accidentally tearing the film packet and exposing the film to white light will cause an area of blackness on the film. However, the thin radiolucent line observed in this example is characteristic of a film packet that has been bent.
- B** Bending the film packet will result in a radiolucent crease mark where the film emulsion is damaged. Carelessly positioning the film packet into the film holder increases the likelihood of bending the film.
- C Certain chemicals and products have the potential to contaminate radiograph film. Films should not be touched, or if unavoidable, should only be contacted by the edges to avoid leaving fingerprints. However, the thin radiolucent line observed in this example is characteristic of a film packet that has been bent.
- D Static electricity will produce a white light spark that has the potential to create a radiolucent artifact on the film. However, the thin radiolucent line observed in this example is characteristic of a film packet that has been bent.
- E Herringbone error refers to the pattern embossed into the lead-foil packaged in the back of the film packet. When the film packet is positioned into the oral cavity backward, the lead foil absorbs most of the primary beam resulting in an underexposed image that, when viewed on a view box, reveals the herringbone pattern characteristic of the film's manufacturer. Herringbone error should not be confused with a bent film artifact.
11. A The radiolucency observed on the mesial surface of the maxillary right canine is indicative of caries.
- B The radiolucency observed on the mesial surface of the maxillary left lateral incisor, apical to the radiopaque restoration, is indicative of recurrent decay.
- C The radiolucency observed on the mesial surface of the maxillary left first molar is indicative of caries.
- D The radiolucency observed on the distal surface of the mandibular left first premolar, outlining the radiopaque metal restoration, is indicative of recurrent decay.
- E** The mandibular right first premolar does not exhibit caries radiographically. The radiolucent fissures observed between the cusps on the occlusal surface of posterior teeth should be not confused with caries.
12. A Local infiltration, where anesthesia is deposited near the terminal nerve endings at the specific site for instrumentation, is recommended when scaling an individual tooth or individual root surface.
- B Field block, where anesthesia is administered near the tooth roots, provides pain control for an area of one or two teeth.

- C** A regional nerve block, where anesthesia is deposited near the trunk of a major nerve, is recommended when anesthesia is required for an entire quadrant.
 - D A supraperiosteal injection is more often used on the maxilla. Multiple supraperiosteal injections would be required to scale an entire quadrant, increasing the risks associated with injections and potentially increasing the dosage of anesthesia. A nerve block would be the better choice.
 - E An intraligamentary injection, also called a periodontal ligament injection, administers the anesthetic to the supporting bone to provide anesthesia to one tooth. An intraligamentary injection is administered with a specially designed syringe and is used when a nerve block in the mandible is not desired.
- 13.
 - A The middle superior alveolar nerve block provides anesthesia to the maxillary premolars.
 - B The posterior superior alveolar nerve block provides anesthesia to the maxillary molars.
 - C The greater palatine nerve block provides palatal anesthesia from the canine distally to the molars.
 - D** An inferior alveolar nerve block deposits anesthesia at the trunk of the inferior alveolar and lingual nerves to provide anesthesia to the mandible.
- 14.
 - A** This patient's antihypertensive medication may produce orthostatic or postural hypotension that results in syncope when he stands up too quickly. Allowing the patient to rise slowly may help prevent a sudden drop in arterial blood pressure and avoid this medical emergency.
 - B A diabetic coma emergency is more likely to occur in type 1 diabetics. Diabetic coma is the result of too little insulin and develops over time. A diabetic coma emergency is not likely to be exacerbated by the position of the treatment chair.
 - C The sudden onset of hypoglycemia, which results from too much insulin, is more common in type 1 diabetics. A hypoglycemic emergency is not likely to be exacerbated by the position of the treatment chair.
 - D There is nothing in this patient's health history that would indicate possible respiratory difficulty.
 - E A reaction to an overdose of anesthesia is not likely to be influenced by the position of the treatment chair.
- 15.
 - A The use of lidocaine HCl 2% without epinephrine does not provide the length of anesthesia required for a typical quadrant scaling appointment. Additionally, without a vasoconstrictor, there is likely to be an increase in bleeding during instrumentation.
 - B The duration and depth of pain control with lidocaine HCl 2% with epinephrine 1:50,000 and lidocaine HCl 2% with epinephrine 1:100,000 is similar. However, lidocaine HCl 2% with epinephrine 1:100,000 contains half the dose of vasoconstrictor making it less likely to elicit an adverse response in this patient with hypertension.
 - C** The duration and depth of pain control achieved with lidocaine HCl 2% with epinephrine 1:100,000 is ideally suited to nonsurgical periodontal therapy. The addition of the vasoconstrictor will provide profound anesthesia for the time required for scaling, and when injected directly into the region, can help control bleeding during instrumentation. When considering this patient's hypertension, which is secondary to the underlying diabetes, the use of epinephrine is considered safe if the maximum recommended dosing for a medically compromised patient is followed.
 - D The short duration and less profound anesthesia produced by mepivacaine HCl 3% without a vasoconstrictor is not recommended for nonsurgical periodontal therapy. Mepivacaine HCl 3% without a vasoconstrictor is often used for short dental procedures on children.

- E Bupivacaine HCl 0.5% with epinephrine 1:200,000 is more often used for extensive periodontal surgeries including implant surgical procedures when the duration of anesthesia needed is lengthy. Bupivacaine HCl 0.5% with epinephrine 1:200,000 is also used to manage postoperative pain associated with these surgical procedures.
16.
 - A Early chronic periodontitis presents with slight bone loss as determined by probing depths of 4 to 5 mm representing 1 to 2 mm total loss of attachment.
 - B** The probing depths, location of the free gingival margin, and localized furcation involvement and mobility indicate an increased amount of bone loss classifying this patient's periodontal status as moderate chronic periodontitis. The periodontal status of patients who present with generalized 3 to 4 mm total loss of attachment are classified as moderate periodontitis.
 - C Advanced chronic periodontitis presents with major bone loss representing greater than 5 mm total loss of attachment.
 - D Aggressive periodontitis is characterized by localized or generalized rapid, destructive bone loss that presents in otherwise healthy patients.
 - E This term refers to regions of disease that do not respond to treatment.
 17.
 - A The Gracey 7/8 is designed for instrumentation in the anterior regions.
 - B Although a rigid instrument is ideal for removing tenacious deposit, the Gracey 9/10 is designed for instrumentation of the premolar teeth and for the direct facial and lingual surfaces of the molars.
 - C The Gracey 11/12 is designed to be used on the mesial and distal surfaces of the anterior teeth and the mesial, facial, and lingual surfaces of the posterior teeth.
 - D The Gracey 15/16 is designed to be used on the mesial, facial, and lingual surfaces of the posterior teeth.
 - E** The Gracey 17/18 is designed to be used on the distal surfaces of the maxillary and mandibular posterior teeth. The extended shank of this instrument will allow better access to the base of this deep pocket.
 18.
 1. **D** CAL (clinical attachment level) is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 2 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the maxillary right second premolar. To this 2 mm, the probing depth (pocket measurement) in this region of 2 mm is added for a total attachment level (sum) of 4 mm.
 2. **C** CAL is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 1 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the maxillary right canine. To this 1 mm, the probing depth (pocket measurement) in this region of 2 mm is added for a total attachment level (sum) of 3 mm.
 3. **E** CAL is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 2 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the maxillary left second premolar. To this 2 mm, the probing depth (pocket measurement) in this region of 3 mm is added for a total attachment level (sum) of 5 mm.

4. **B** CAL is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 0 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the mandibular left lateral incisor. To this 0 mm, the probing depth (pocket measurement) in this region of 2 mm is added for a total attachment level (sum) of 2 mm.
 5. **F** CAL is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 4 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the mandibular right central incisor. To this 4 mm, the probing depth (pocket measurement) in this region of 2 mm is added for a total attachment level (sum) of 6 mm.
 6. **A** CAL is calculated as the sum of the measurement (in millimeters) of the distance observed from the CEJ (clinically observable when there is recession) to the free gingival margin and the measurement (in millimeters) of the depth of the pocket. In this case, 0 mm is given as the measurement of recession (from the CEJ to the free gingival margin) on the facial surface of the mandibular right first premolar. To this 0 mm, the probing depth (pocket measurement) in this region of 1 mm is added for a total attachment level (sum) of 1 mm.
19. **A,D** These brown discolored areas represent demineralized enamel and possible caries that should not be scaled or polished.
B Tooth whitening should not be applied to these brown discolored areas as they represent demineralized enamel and possible caries.
C These brown discolored areas represent demineralized enamel and possible caries. Although the caries will need restoration, application of fluoride can help inhibit the demineralization process and possibly enhance remineralization of some of the defects.
E These brown discolored areas represent demineralized enamel and possible caries. There is no benefit to be gained from burnishing these areas with a desensitizing agent.
 20. **A** Although polishing should be postponed when a patient presents with a communicable disease to avoid producing contagious aerosols, this patient does not present with a communicable disease.
B This patient presents with areas of demineralized enamel that are at an increased risk for caries. Removing the fluoride-rich outer layer of enamel by polishing these teeth should be avoided.
C This patient presents with several teeth affected by cemental caries that should not be subjected to unnecessary polishing.
D Polishing may force microorganisms into spongy, bleeding tissue and potentially elicit an inflammatory response. Polishing near soft, spongy gingiva should be avoided.
E The medications this patient takes puts him at risk for xerostomia, and increases his risk for caries. Removing the fluoride-rich outer layer of enamel by polishing should be avoided when conditions exist that increase the patient's risk of caries.
 21. **A** To maintain even blood glucose levels throughout the day, the diabetic is advised to eat small, frequent meals and snacks. Additionally, small, frequent meals may help prevent hunger that can stimulate overeating and lead to weight gain.
B Counting carbohydrates is an accepted method for helping the diabetic maintain even blood glucose levels throughout the day.

- C To maintain optimum glucose control, the diabetic is advised to limit alcohol intake. Eliminating the calories from alcohol may help this patient better achieve his goal of weight loss.
 - D Fats are high in calories. Consuming fewer fats, especially less saturated fat, is not only recommended for diabetic patients, but also plays a major role in helping manage unhealthy cholesterol levels.
 - E** Sucrose may be consumed as part of an overall healthy diet. Diabetics no longer have to completely eliminate sugar from their diet.
- 22.
- A Chewing gum can help stimulate salivary flow. Additionally, the use of gum sweetened with xylitol has been shown to be cariostatic. However, given the evidence of areas of demineralized enamel and caries, home fluoride rinses are the best choice from this list.
 - B,C Although the medications this patient has recently started taking are known to produce xerostomia, this patient is not experiencing dry mouth conditions that would prompt the use of a saliva substitute or the need for frequent sips of water. Additionally, the areas of demineralized enamel and caries indicate that home fluoride rinses are the best choice from this list.
 - D** Home fluoride rinses should be recommended for this patient. Even though he has not complained of dry mouth, his medications, which he has only recently started taking, have an adverse effect of creating dry mouth conditions. Xerostomia may have already played a role in this patient's oral condition as observed by the presence of several areas of demineralization and caries, making home fluoride rinses a good recommendation.
 - E Limiting salt will not improve salivary flow or dry mouth conditions.
- 23.
- A Diets high in carbohydrates put this patient at risk for caries, especially if medications are reducing his production of saliva.
 - B** Crowded and malaligned teeth will most likely present a challenge for thorough oral self-care, by creating areas where plaque removal is difficult. However, poor oral hygiene self-care habits are not the cause of this patient's crowding and malaligned teeth.
 - C Research has linked diabetes and periodontal diseases, suggesting that control and management of both these diseases are interrelated.
 - D Research has linked periodontal diseases with coronary artery disease suggesting that bacterial by-products from periodontal disease may enter the blood-stream causing the liver to produce proteins that inflame arteries or result in the formation of clots.
 - E Xerostomia is an adverse oral effect associated with most antihypertensives and diuretics, including Avapro and Zaroxolyn taken by this patient.
- 24.
- A Assisting this patient in staying motivated to follow a healthy diet that includes limiting high-carbohydrate snacking and adding fruit and vegetables into his daily diet may assist in reducing his risk for caries and indirectly help improve his periodontal disease, respectively. However, improving his periodontal condition is not a catalyst for weight reduction.
 - B** This patient's physician is aware of research that indicates a possible link between the inflammatory condition of periodontal disease and glycemic control. Diabetes and periodontal diseases have the potential to influence each other. As chronic diseases, both diabetes and periodontitis require collaborate efforts between oral health care professionals and the patient's physician to provide this patient with comprehensive health care.
 - C Improving this patient's periodontal condition through nonsurgical periodontal therapy may play a role in helping control his diabetes. Because high blood pressure is often associated with diabetes, it may be expected to improve if

glycemic control improves. However, the most likely primary concern of his physician is the concurrent chronic inflammatory affect his periodontal condition has on control of his diabetes.

- D Restoring his oral health may have an effect on his ability to control his diabetes. However, weight reduction and lifestyle changes will most likely play a larger role in helping this patient manage his need for medications.
 - E Periodontal disease has not been linked with cholesterol levels.
- 25.
- A If the original treatment plan to which the patient has given informed consent changes, treatment should be stopped to discuss the alternate or additional treatment procedures. Therefore, if this patient had not given consent to use a topical anesthetic, treatment should be stopped, the patient allowed to sit up, and a discussion should take place regarding his anesthesia options. Written informed consent should be obtained.
 - B Obtaining verbal consent may appear easier than having to interrupt treatment, sit the patient up, and allow time for questions. However, informed consent requires that the patient be given sufficient information about a treatment or procedure before providing written permission.
 - C** Because the treatment planned changed, additional written informed consent must be secured. The patient must be provided with an opportunity to ask questions. Stopping treatment and sitting the patient upright will facilitate a direct discussion and allow the patient to make an informed choice.
 - D Sitting the patient up and allowing time for questions can occur in the dental chair. Although a patient can request the option to think over the treatment plan, rescheduling the patient is not required.

CHAPTER 17 CASE O EILEEN OLDS

1.
 - A Centric relation refers to an unstrained occlusal position where the arches may be moved freely from side to side.
 - B Open bite refers to a lack of contact between the maxillary and mandibular teeth when the arches are closed together.
 - C** The left and right maxillary central incisors should contact one another at the mesial surface. The term *diastema* is used to describe the space created when adjacent teeth in the same arch do not contact.
 - D Parafunctional refers to a deviation from a normal functioning occlusion.
 - E Fremitus refers to vibrations that may be detected when a tooth prematurely contacts a tooth in the opposing arch.
2.
 - A** The radiographs further confirm that this bony exostosis is a torus mandibularis.
 - B A polyp refers to a soft tissue swelling or mass that is not hard when palpated. Additionally, the radiographs confirm the presence of bilateral tori.
 - C,E A salivary gland that becomes blocked may swell into a mucocele or a ranula that would not be hard upon palpation. Additionally, the radiographs confirm the presence of bilateral tori.
 - D A cyst would not be hard upon palpation. Additionally, the radiographs confirm the presence of bilateral tori.
3.
 - A Knifelike describes marginal gingiva that lies flat against, and fits snugly around, the teeth. Knifelike marginal gingiva is usually associated with healthy tissues.
 - B Cratered papillae appear scooped out, or concave in the interproximal regions.
 - C Blunted papillae are flat and do not fill in the interproximal area.
 - D Rolled usually refers to a thickened marginal gingiva that appears as a collar around the tooth.
 - E** This enlargement of the papilla is referred to as bulbous.

4.
 - A A developmental anomaly that changes the shape of the tooth should not be confused with this heavy buildup of dental calculus.
 - B,C The heavy buildup of dental calculus on the lingual surfaces of these teeth should not be confused with restorative materials such as those used to stabilize periodontally involved teeth or composite restorations.
 - D** The mineralized biofilm in this region has built up into a tenacious mass of dental calculus that almost completely covers the lingual surfaces of these teeth.
 - E Hypercementosis is most often observed on radiographs as an excessive buildup of cementum on the roots of the effected tooth. Excessive buildup of cementum should not be confused with this excessive buildup of dental calculus.
5.
 - A This patient's height and body weight indicate the use of a regular adult-size cuff.
 - B** Compression of the arteriovenous shunt must be avoided. Therefore, the blood pressure cuff must not be placed over this patient's right arm. This patient's height and body weight indicate the use of a regular adult-size cuff applied to the left arm.
 - C Compression of the arteriovenous shunt placed in this patient's right arm must be avoided. Therefore, the blood pressure cuff must be placed over this patient's left arm.
 - D,E The adult thigh-size cuff applied to the leg is not necessary. This patient's height and body weight indicate the use of a regular adult-size cuff.
6.
 1. **C** When the patient is seated correctly, radiographs taken in all maxillary regions will require a positive vertical angulation setting. All maxillary teeth tilt outward from the midsagittal plane. The facial tilt of the posterior teeth is less than the facial tilt of the anterior teeth. The maxillary molars tilt facially the least, requiring slightly less vertical angulation to achieve a diagnostic image. The correct vertical angulation setting is +20.
 2. **A** When the patient is seated correctly, radiographs taken in all maxillary regions will require a positive vertical angulation setting. All maxillary teeth tilt outward from the midsagittal plane. The facial tilt of the anterior teeth is greater than the facial tilt of the posterior teeth. The maxillary canines tilt facially the most, requiring slightly more vertical angulation to achieve a diagnostic image. The correct vertical angulation setting is +45.
 3. **B** When the patient is seated correctly, radiographs taken in all maxillary regions will require a positive vertical angulation setting. All maxillary teeth tilt outward from the midsagittal plane. The facial tilt of the posterior teeth is greater than the facial tilt of the anterior teeth. The maxillary premolars tilt facially more than the molars, but less than the canines. The correct vertical angulation setting to achieve diagnostic quality is between that setting used for the anterior teeth and that setting used for the molars. In this case, the correct setting is +30.
 4. **D** When the patient is seated correctly, radiographs taken in all regions of the mandibular arch will require a negative vertical angulation setting. The mandibular anterior teeth tilt outward, or facially from the midsagittal plane. The mandibular posterior teeth are in a position that is parallel to the midsagittal plane (straight up in the arch) or at a slightly lingual tilt (inward) to the midsagittal plane. The mandibular molars are most likely to be positioned slightly tilted lingually requiring the least vertical angulation to achieve a diagnostic image. The correct vertical angulation setting is -5.
 5. **F** When the patient is seated correctly, radiographs taken in all regions of the mandibular arch will require a negative vertical angulation setting. The mandibular anterior teeth tilt outward, or facially from the midsagittal plane. The mandibular posterior teeth are in position that is parallel to the midsagittal

plane (straight up in the arch) or at a slightly lingual tilt (inward) to the midsagittal plane. The mandibular central incisors are most likely to be positioned tilted facially requiring a slightly increased vertical angulation to achieve a diagnostic image. The correct vertical angulation setting is -15 .

6. **E** When the patient is seated correctly, radiographs taken in all regions of the mandibular arch will require a negative vertical angulation setting. The mandibular anterior teeth tilt outward, or facially from the midsagittal plane. The mandibular posterior teeth are in position that is parallel to the midsagittal plane (straight up in the arch) or at a slightly lingual tilt (inward) to the midsagittal plane. The mandibular premolars are most likely to be positioned tilted lingually requiring a slightly less vertical angulation than the mandibular anterior teeth. The correct vertical angulation setting is -10 .
7. **A** Bending the edge or a corner of the film packet image receptor can result in a white line indicating damage to the emulsion. Evidence of a bent film packet will most likely also include a distorted appearance to the radiographic image, not apparent here. Additionally, the normal radiographic landmark called the inverted Y-formation, where the borders of the nasal fossa and maxillary sinus cross, should not be confused with evidence of film packet bending.
 - B** This radiopacity is the typical appearance of the normal radiographic landmark called the inverted Y-formation, where the borders of the nasal fossa and maxillary sinus cross. The inverted Y is most often recorded on radiographs exposed in the maxillary canine region.
 - C** The soft tissue shadow of the nose is most often recorded on radiographs exposed in the maxillary central and lateral incisor regions. When recorded on the radiograph, the soft tissue shadow of the nose appears as an enlarged outline of the tip of the nose.
 - D** Due to the angle of the x-ray beam, it is possible that a portion of the image receptor holding device can be recorded on the resultant radiograph. This is especially true of metal parts of these holders which easily block radiation from reaching the image receptor. However, the inverted Y that forms where the borders of the nasal fossa and maxillary sinus intersect should not be confused with an image of the image receptor holder.
 - E** Bony fractures that appear as a radiolucent break in the bone or sclerotic (hardened) bone which appears as an increased radiopacity should not be confused with the normal radiographic appearance of the landmark called the inverted Y that forms where the borders of the nasal fossa and maxillary sinus intersect.
8. **A,D** Osteosclerosis and condensing osteitis are forms of ossification where dense bone forms resulting in an increased radiopacity. These conditions occur within the bone, and should not be confused with the bony exostoses of tori. Additionally, the photographs indicate the presence of significantly sized bilateral tori that are expected to be imaged on the radiographs.
 - B** Hypercementosis represents an excessive formation of cementum along the root of a tooth. The radiopaque appearance of hypercementosis would be surrounded by the radiolucent periodontal ligament space, separating the condition from the bone.
 - C** Mandibular tori represent a localized overgrowth of bone, resulting in an increased radiopacity often imaged on radiographs. This round, cotton-ball appearance is characteristic of tori. Additionally, the photographs indicate the presence of significantly sized bilateral tori that are expected to be imaged on the radiographs.
 - E** Touching the film emulsion or surface of the phosphor plate (used for indirect digital imaging) is not likely to produce radiopaque artifacts on the image unless the finger is contaminated with a chemical or product that is likely to

damage the image receptor surface in this manner. This round, cotton-ball appearance is characteristic of tori and should not be confused with artifacts. Additionally, the photographs indicate the presence of significantly sized bilateral tori that are expected to be imaged on the radiographs.

9.

A The crowns of the maxillary right first premolar and first molar appear to have been severely broken down, leaving retained root tips.

B The crowns of the maxillary right first premolar and first molar are missing. The retained root tips of these severely broken down teeth should not be confused with the presence of extra, or supernumerary teeth.

C Retained root tips from these severely broken down teeth should not be mistaken for a smaller than normal sized tooth, referred to as a microdont.

D Dental implants may be placed into the alveolar bone ridge to help restore missing teeth. Because they are made of metal, implants will appear distinctly radiopaque. Surgically placed dental materials should not be mistaken for natural teeth roots that were retained when the crowns of these teeth fractured off.

E Retention pins are used to provide support for restorative materials such as amalgam, composite, and crowns. Retention pins are placed within the dentin and because they are made of metal, appear distinctly radiopaque.
10.

A,E This patient's lack of professional dental hygiene care has contributed to the accumulation of significant calculus and periodontal disease that has resulted in loss of alveolar bone support for the teeth. However, the ground glass appearance of the trabecular bone, the disappearance of the lamina dura, and the narrowing of the pulp chambers are all characteristic of renal osteodystrophy.

B Although the medications taken by this patient have multiple adverse effects on the oral cavity, the ground glass appearance of the trabecular bone, the disappearance of the lamina dura, and the narrowing of the pulp chambers are all characteristic of renal osteodystrophy.

C Habitually chewing on ice may contribute to occlusal trauma that could play a role in periodontal disease and the resultant loss of alveolar bone support. However, the ground glass appearance of the trabecular bone, the disappearance of the lamina dura, and the narrowing of the pulp chambers are all characteristic of renal osteodystrophy.

D The bone disease osteodystrophy develops when the kidneys fail to regulate blood levels of calcium and phosphate. The resultant demineralization of the bone often appears radiographically as a decrease in trabeculation, loss of lamina dura, and pulp chamber narrowing.
11.

A Currently, there is no consensus on the need for prophylactic premedication for patients with ESRD who are receiving hemodialysis who do not have known cardiac risk factors. Instead the determination for premedication is made on an individual basis. This patient's nephrologist should be contacted to determine the need for antibiotics prior to scaling.

B Patients with ESRD have abnormal bleeding tendencies that result from altered and decreased platelets. Additionally, the use of heparin in dialysis procedures will further increase this patient's risk for bleeding during oral procedures. Therefore, her nephrologist should be contacted to determine blood clotting time before scaling.

C This patient presents with moderate xerostomia. Her medical condition, the medications she is taking, and the restrictions on her oral intake of fluids all present a challenge when considering the usual recommendations to combat dry mouth. However, adequacy of salivary flow would not be a contraindication to quadrant scaling that must be discussed with her nephrologist.

D The adequacy of control of this patient's high blood pressure should be discussed with her nephrologist to determine whether scaling may be performed.

- E In addition to avoiding or reducing the dosage of drugs that are excreted by the kidney, the interactions of the multiple medications taken by this patient must be considered before introducing another drug. Additionally, hypertension will most likely prompt the use of local anesthetics with a reduced dose and possibility with a reduction of epinephrine. Because the need for pain control may not be evident until after treatment has started, it may be prudent to anticipate this need and contact her nephrologist before initiating scaling.
12. A,C,D These answers are incorrect, as explained next.
- B** Because the anticoagulant heparin is used during hemodialysis, quadrant scaling appointments for this patient should be scheduled on the days in between her dialysis sessions to avoid bleeding complications. Scheduling dental surgical procedures on the day after the last day of the week of hemodialysis will allow an extra day clotting time before this patient returns for her next dialysis session on Monday.
13. A,B Antihypertensives including Vasotec and Cozaar can be expected to contribute to xerostomia; and some antihypertensives, such as Vasotec, have been shown to alter taste as well.
- C Diuretics, such as Lasix, can be expected to contribute to dry mouth conditions.
- D** Procrit, taken to treat anemia related to this patient's ESRD, is the only medication on this list that does not contribute to dry mouth or taste disturbances.
- E Many antidepressants, such as Prozac, contribute to xerostomia and taste disturbance.
14. A A power toothbrush may be the best recommendation from this list for helping this patient to improve her oral hygiene.
- B This patient presents with areas of open contacts that prompt the recommendation of an interproximal brush.
- C This patient should be encouraged to add the use of dental floss to her daily oral self-care routine.
- D The use of a toothpick-in-holder may help this patient remove biofilm at or just apical to the marginal gingiva.
- E** Floss threaders are used to gain access to areas under fixed prostheses. This patient does not present with conditions that prompt the use of a floss threader.
15. **A** A pallor in the mucosa of patients with ESRD is usually the result of anemia and the decreased production of erythropoietin by the kidneys.
- B Mucosal pallor is not related to hypertension.
- C Most patients with ESRD develop anemia caused by the kidney's decreased erythropoietin production. Mucosal pallor of patients with ESRD is therefore the result of anemia.
- D Dialysis can help improve anemia and its oral manifestations.
- E Periodontal disease is more likely to be associated with erythema.
16. A The saliva of patients with ESRD contains a high urea content that contributes to the development of an ammonia odor to the breath.
- B Increased salivary urea levels in patients with ESRD appear to induce the formation of dental calculus.
- C** Because this patient presents with caries, a moderate risk for future caries exists. However, in spite of poor oral self-care and lack of professional care for several years, rampant caries is not highly likely. In fact, studies have indicated that patients with ESRD may have a low caries incidence because of salivary changes related to their disease.
- D Many patients with ESRD develop renal osteodystrophy with resultant demineralization of bone.

- E Bleeding tendencies exhibited by the patient with ESRD may be evident as increased gingival bleeding.
17. A A plastic scaler is recommended for use in removing calculus from dental implant structures.
- B** The ultrasonic scaler would be the best choice for initial treatment of the heavy supragingival calculus.
- C,E Scalers and curets will most likely play a role in debridement. However, the heavy calculus accumulation would best be initially treated with the ultrasonic scaler.
- D The use of the chisel scaler is limited to the specific area for which it is designed. The chisel scaler is used primarily to remove calculus from the proximal surfaces of the anterior teeth when the interdental papillae are missing. Although the chisel scaler may play a role in debridement of the maxillary central incisors where a diastema presents, its use would be limited because most of the other regions exhibit intact papillae.
18. **A** The beavertail tip is designed to remove heavy, supragingival calculus and with its broad, flat design, is an ideal choice for this region.
- B Although the standard-diameter universal tip is designed to remove medium to heavy calculus deposits, the broad, flat tip of the beavertail is the best choice for removing deposit from the lingual surfaces of these teeth.
- C The standard-diameter triple bend tip is designed to fit around line angles, and into interproximal areas. Although it may be used to access the proximal surfaces of these teeth, the beavertail tip design makes it the better choice for initial removal of the heavy supragingival calculus from these lingual surfaces.
- D,E Slim-diameter tips are designed to remove light calculus deposits and would not be effective at initial debridement of the calculus present on these teeth.
19. A The significant bone loss observed in the radiographs of this region indicate that once the heavy bridge of calculus is removed, these teeth are likely at risk for mobility.
- B As calculus is removed and inflamed tissue shrinks, the teeth root surfaces in this region are likely to be exposed, increasing the risk for dentinal sensitivity.
- C Based on the location of the gingival margin before scaling, there is likely to be significant gingival recession after the calculus and endotoxins are removed from these teeth prompting the shrinkage of these edematous tissues.
- D** Because these teeth do not present with fractures or a condition that puts them at risk for fractures such as caries, attrition, or erosion before scaling, the risk of tooth fractures is not likely to increase as a result of scaling.
- E As tissue shrinkage takes place, recession and papillary shape changes can result in the appearance of a longer clinical crown.
20. A This patient initially presented motivated to improve her oral health to gain access to the kidney transplant wait list. It is highly unlikely that she would have lost sight of this goal after scaling appointments. It is more likely that the presence of heavy calculus at the initial appointment prevented the probe from accessing the base of the pockets to record a true reading.
- B Although this patient's medical conditions may play a role in the healing process, it is more likely that eliminating her oral infections will lead to improved overall health. Additionally, it is more likely that the presence of heavy calculus at the initial appointment prevented the probe from accessing the base of the pockets to record a true reading.
- C Although an adverse oral effect of ESRD is a tendency for higher accumulations of dental calculus, it is more likely that the presence of heavy calculus at the initial appointment prevented the probe from accessing the base of the pockets to record a true reading.

- D Although probing with greater than 10 to 20 g of pressure may produce probe readings that are greater than the actual depth of the pocket, it is more likely that the heavy accumulation of calculus prevented accurate readings at the initial appointment.
- E** The presence of heavy calculus most likely limited access to the base of the pockets resulting in probe readings that did not represent the actual depth of the pockets at the initial appointment.
21. A,D This patient is on a salt restrictive diet contraindicating the use of sodium bicarbonate in the air-powder polisher and saline in oral irrigation.
- B,E Caution should be used when prescribing medications for the patient with ESRD. Drugs metabolized and/or eliminated by the kidneys, such as tetracycline and doxycycline, are potentially nephrotoxic and should be avoided. The use of aspirin and ibuprofen should be avoided because of their risk of sodium and water retentive properties, and the risk of hemorrhage.
- C** This patient presents with caries indicating her moderate risk for future occurrences. Additionally, removal of the heavy calculus and the expected tissue shrinkage following debridement will most likely expose more of the tooth surface to caries susceptibility. Exposing the root surface also has potential for increasing tooth sensitivity. Therefore, this patient would benefit from a fluoride varnish treatment.
22. A Although Advanced Listerine (essential oils) can help destroy the bacteria associated with halitosis and biofilm, the alcohol content of this Listerine product may exacerbate this patient's dry mouth conditions.
- B The active ingredient chlorhexidine gluconate found in the product PerioGard® should be used for a limited time, specifically treating gingivitis and would not be recommended for long-term daily oral self-care. Additionally, the adverse effects of chlorhexidine gluconate use are similar to the adverse effects this patient already experiences from her medical conditions and/or the medications she is taking. These adverse affects include an increase in calculus formation and taste alterations. The possible superficial desquamation of the oral mucosa may be exacerbated by her dry mouth condition. Additionally, chlorhexidine gluconate presents the adverse effect of staining exposed tooth root surfaces.
- C** Biotène Mouthwash (lactoperoxidase enzyme) is alcohol and sugar free, and formulated specifically for patients with a serious illness or whose medical condition is compromised by medication use. Biotène Mouthwash provides relief of dry mouth conditions.
- D Although Scope Dual Blast (cetylpyridinium chloride) may help manage halitosis, the alcohol content may exacerbate this patient's dry mouth conditions.
- E This patient does not appear to have a high caries risk, in spite of poor oral self-care practices. Studies have indicated that patients with ESRD may have a low caries incidence because of salivary changes related to their disease. Using a product such as Oral-B Fluorinse (0.2% sodium fluoride) may be recommended; however, the use of a daily mouth rinse that provides relief of dry mouth conditions is the best choice from this list.
23. **A,B** Chewing gum and sucking on lozenges can assist with stimulating salivary flow. Products containing xylitol have the added benefit of helping control *Streptococcus mutans*.
- C** If not contraindicated by her dietitian, sucking on frozen grapes can aid in stimulating salivary flow and are softer than ice if chewed.
- D Excessive brushing is not necessary and depending on the type of toothpaste used and the amount of times the patient expectorates, may lead to an increased sensation of dryness.
- E** The use of a humidifier may alleviate the sensation of dryness of the sinuses and the oral cavity.

F,H This patient is most likely on a sodium and fluid restricted diet.

G An alcohol-free and sugar-free mouthrinse can provide relief of dry mouth conditions.

24. **A** Tartar control toothpastes can help prevent the additional buildup of supragingival calculus, but will not prevent subgingival dental calculus buildup.

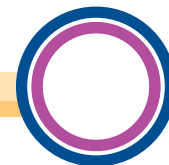
B The active ingredient in most tartar control toothpastes, such as pyrophosphate, triclosan, or zinc citrate, inhibits calculus crystal growth and helps prevent attachment of supragingival dental calculus to the tooth.

C,D Tartar control toothpastes can help prevent the additional buildup of supragingival dental calculus but they cannot remove dental calculus once it has attached to the tooth surface.

25. **A** Studies have demonstrated an increased incidence of hepatitis among patients receiving hemodialysis. It is illegal and unethical to refuse to treat this patient because she has, or is at risk for, hepatitis. In fact, all patients should be treated with standard infection control precautions. Dental health care professionals should take steps to receive recommended immunizations.

B,C,D These answers are incorrect, as explained previously.

APPENDIX A



Periodontal Disease Risk Assessment Form

Patient name: _____ Chart #: _____ Date: _____

Assessment date: (Please circle) Is this? Base line or Recall

Disease Indicators	(Please circle)		
Existing or previous periodontitis	NO	YES	% sites:
Gingival bleeding	NO	YES	% sites:
Increasing pocket depths	NO	YES	% sites:
Recession	NO	YES	% sites:
Gingival enlargement	NO	YES	% sites:
Interdental papillary changes (blunting, cratered)	NO	YES	% sites:
Suppuration or purulent exudate	NO	YES	% sites:
Furcation involvement	NO	YES	% sites:
Tooth mobility	NO	YES	% sites:
Radiographic evidence of bone loss	NO	YES	% sites:
YES circled = increased risk			

Nonmodifiable Risk Factors	(Please circle)		
Past history of periodontal disease	NO	YES	
Race	African American may = increased risk		
Gender	MALE	FEMALE	Male = increased risk
Age	Aging may = increased risk		
Family history of periodontal disease	NO	YES	
Genetic disorders or compromised immune system	NO	YES	
DNA testing for periodontal susceptibility	NEGATIVE	POSITIVE	
YES circled = increased risk			

Modifiable Risk Factors	(Please circle)		
Adequacy of self-care	GOOD	FAIR	POOR
Xerostomia	NO	YES	
Smoking	NO	YES	Amount per day:
Stress	LOW	MODERATE	HIGH
Medications that affect gingival tissues/cause xerostomia	NO	YES	
Poorly controlled diabetes	NO	YES	
Osteoporosis/osteopenia	NO	YES	
HIV and AIDS	NO	YES	
YES circled = increased risk			

Local Contributing Factors	(Please circle)		
Overhanging restorations	NO	YES	% sites:
Poorly contoured crown margins	NO	YES	% sites:
Ill-fitting fixed/removable appliances	NO	YES	% sites:
Oral jewelry	NO	YES	% sites:
Malpositioned teeth/contacts	NO	YES	% sites:
Calculus	NO	YES	% sites:
Toothbrush abrasion	NO	YES	% sites:
Inadequate attached gingiva	NO	YES	% sites:
Occlusal trauma/fremitis	NO	YES	% sites:
Mouth breathing	NO	YES	
YES circled = increased risk			

References:

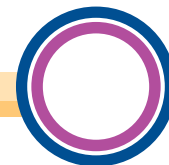
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APPENDIX B

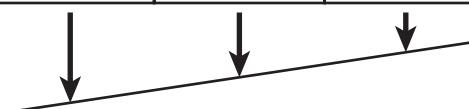


Caries Risk Assessment Form — Children Age 6 and Over/Adults

Patient Name: _____ Chart #: _____ Date: _____

Assessment date: (Please circle) Is this? Base line or Recall

Disease Indicators (Any one “YES” signifies likely “High Risk” and to do a bacteria test**)	YES = CIRCLE	YES = CIRCLE	YES = CIRCLE
Visible cavities or radiographic penetration of the dentin	YES		
Radiographic approximal enamel lesions (not in dentin)	YES		
White spots on smooth surfaces	YES		
Restorations last 3 years	YES		
Risk Factors (Biological predisposing factors)			
MS and LB both medium or high (by culture**)		YES	
Visible heavy plaque on teeth		YES	
Frequent snack (> 3× daily between meals)		YES	
Deep pits and fissures		YES	
Recreational drug use		YES	
Inadequate saliva flow by observation or measurement (**If measured, not the flow rate below)		YES	
Saliva reducing factors (medications/radiation/systemic)		YES	
Exposed roots		YES	
Orthodontic appliances		YES	
Protective Factors			
Lives/work/school fluoridated community			YES
Fluoride toothpaste at least once daily			YES
Fluoride toothpaste at least 2× daily			YES
Fluoride mouthrinse (0.05% NaF) daily			YES
5,000 ppm F fluoride toothpaste daily			YES
Fluoride varnish in last 6 months			YES
Office F topical in last 6 months			YES
Chlorhexidine prescribed/used one week each of last 6 months			YES
Xylitol gum/lozenges 4× daily last 6 months			YES
Calcium and phosphate paste during last 6 months			YES
Adequate saliva flow (> 1ml/min stimulated)			YES
**Bacteria/Saliva Test Results: MS:LB: Flow Rate: ml/min.Date:			



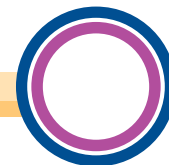
VISUALIZE CARIES BALANCE
(Use circled indicators/factors above)
(EXTREME RISK = HIGH RISK + SEVERE SALIVARY GLAND HYPOFUNCTION)
CARIES RISK ASSESSMENT (CIRCLE): EXTREME HIGH MODERATE LOW

Reference:

Redrawn with permission from Featherstone JDB, Domejean-Orliaguet S, Jenson, L, Wolff M, Young DA: Caries risk assessment in practice for age 6 through adult. *Journal of the California Dental Association*, 35(10), 703–713, 2007.

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APPENDIX C



Oral Cancer Risk Assessment* Form

Patient name: _____ Chart #: _____ Date: _____

Assessment date: (Please circle) Is this? Base line or Recall

Disease Indicators	(Please circle)		
Suspicious swelling/lump/growth	NO	YES	Location:
Area of induration/hardening tissues	NO	YES	Location:
Sore/ulcer that does not heal after 2 weeks	NO	YES	Location:
White patch (leukoplakia)	NO	YES	Location:
Red patch (erythroplakia)	NO	YES	Location:
Unexplained bleeding	NO	YES	Location:
Difficulty swallowing/indigestion	NO	YES	Duration:
Nagging cough/persistent hoarseness	NO	YES	Duration:
YES circled = referral			

Risk Factors	(Please circle)		
Past history of cancer	NO	YES	
Race	African American may = increased risk		
Gender	MALE	FEMALE	Male = increased risk
Age**	Over 40 = increased risk		
Smoking	NO	YES	Amount per day:
Spit tobacco use	NO	YES	Amount per day:
Alcohol use	NO	YES	Amount: Occasionally Moderately Heavy
HVP (Human papillomavirus)	NO	YES	
Frequent sun exposure/burn	NO	YES	
Chronic irritation from ill-fitting dental appliances/restorations	NO	YES	Location:
Taking immunosuppressants	NO	YES	
Diet low/insufficient in fruit/vegetables	NO	YES	
YES circled = increased risk			

*Approximately 25% of oral cancer patients have no known risk factors.

**Oral cancer is increasing in patients under age 40, many with no known risk factors.

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APPENDIX D



Implant Complication and Failure* Risk Assessment Form

Patient name: _____ Chart #: _____ Date: _____

Assessment date: (Please circle) Is this? Base line or Recall

Complication/Failure Indicators	(Please circle)			
Inflammation	NONE	SLIGHT	MODERATE	SEVERE
Gingival color change	NONE	SLIGHT	MODERATE	SEVERE
Bleeding on probing	NONE	SLIGHT	MODERATE	SEVERE
Probing depths	< 5 mm	5–7 mm	> 7 mm	
Pain/discomfort	NONE	SLIGHT	MODERATE	SEVERE
Exudate detected	NO	YES		
Radiographic evidence of bone loss from initial surgery	NONE	< 2 mm	2–4 mm	> 4 mm
Mobility**	NO	YES		
Risk increases with severity				

Risk Factors	(Please circle)			
Bone quality/volume prior to placing implant. Tooth loss due to:		CONGEN MISS	TRAUMA	PERIO DIS
Adequacy of self-care	GOOD		FAIR	POOR
Prostheses that are difficult to clean	NO	YES		
Excess cement left in place after prostheses attached	NO	YES		
Occlusal trauma	NO	YES		
Smoking/tobacco use	NO	YES		
Poorly controlled diabetes	NO	YES		
Osteoporosis/osteopenia	NO	YES		
Taking bisphosphonates	NO	YES		
Radiation therapy to the head/neck	NO	YES		
YES circled = increased risk				

* Implant failure is multifaceted and the cause may be unidentifiable.

** Mobility indicates failure.

References:

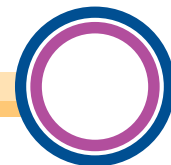
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The numbers indicated under each topic below correspond to study questions contained within the various cases that pertain to these specific topics.

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 Case H: 9, 23, 24

Case I: 15, 16, 24
 Case J: 11, 12, 15, 20
 Case K: 5, 10, 12, 14, 15, 18, 19, 21, 22, 23, 25
 Case L: 2, 8, 9, 10, 11, 12, 13, 19, 20, 21, 22, 23
 Case M: 1, 2, 4, 5, 6, 14, 15, 19
 Case N: 1, 3, 14, 20, 21, 22, 24
 Case O: 5, 11, 12, 15, 16, 21, 23, 25

Tobacco Cessation

Case B: 21, 22, 25
 Case E: 22
 Case H: 20

Tooth/Root Morphology

Case A: 1, 3
 Case B: 3, 5, 6, 11, 16, 23
 Case C: 3, 8, 9, 10, 12
 Case E: 3, 10, 16
 Case F: 2, 3
 Case I: 3, 19, 20
 Case J: 8
 Case L: 7
 Case M: 12, 13
 Case N: 8, 9
 Case O: 1, 9, 10

Tooth Stain

Case A: 20
 Case B: 19
 Case C: 5, 20
 Case E: 7
 Case F: 23
 Case H: 21
 Case I: 2, 3
 Case J: 21
 Case K: 21, 20
 Case M: 24
 Case N: 20

Treatment Planning

Case A: 18, 19
 Case B: 9, 17, 18, 19
 Case C: 14, 15, 18, 19, 20
 Case D: 10, 11, 17, 18, 21, 22, 24
 Case E: 8, 19, 20, 21
 Case F: 9, 10, 11, 19, 20, 22
 Case G: 10, 13, 14, 15, 18, 19, 20, 21, 22, 24, 25
 Case H: 8, 9, 13, 14, 16, 17, 18, 19
 Case I: 8, 16, 21, 25
 Case J: 11, 12, 13, 16, 19, 20, 21, 23
 Case K: 10, 12, 17, 19, 20, 21, 22
 Case L: 8, 11, 13, 16, 18, 19, 20, 22
 Case M: 16, 17, 21, 23
 Case N: 15, 19, 20, 22
 Case O: 11, 12, 17, 18